THE

Southern Agriculturist,

AND

REGISTER OF RURAL AFFAIRS;

ADAPTED TO THE

SOUTHERN SECTION OF THE UNITED STATES.

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FOR THE YEAR 1830.

By J. D. LEGARE, Editor.

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THE

SOUTHERN AGRICULTURIST.

JANUARY, 1830.

PART I.

ORIGINAL CORRESPONDENCE.

ART. I.—*Extracts from an Address delivered before the Fairfield Agricultural Society; by* WM. ELLISON;

[Furnished by that Society for publication in the Southern Agriculturist.]

* * * * * * *

SOME say "it is useless for me to join Agricultural Societies; I possess but little and know but little." It does not, it is true, fall to the lot of every man to be a learned, or to be a skilful and successful planter; but let no man suppose that because he is poor, unlearned and undistinguished, he cannot be useful. Every man may be useful in his sphere, and the humblest individual in society, may have it in his power, by some useful hints, to give information, and by some accidental discovery, to contribute to the public good. The inequalities of condition, the spirit of emulation, the varieties of capacity and grades of employment, and the demands of necessity, constitute the great momentum of civilized society. Take these away, and the affairs of the world would stagnate, and man would relapse into a state of barbarism. Such men, besides communicating occasional useful hints, may receive in their turn much valuable information from Agricultural Societies, and it is important that the small proprietors, as well as the common labourers, should be better informed. One of the great advantages arising from such institutions, consists in a free communication of sentiments and observations, and they also contribute to lay the foundation of social habits and fraternity

of feeling. It seems to me, that in this respect, there is a considerable change in the society of the middle country in the lapse of twenty years. This may be mere notion on my part, and may arise from the influence of that prejudice so common among those who are past the season of youth; that the days when they were young, were better than those which have succeeded them. It is natural to man to look back with pleasure to that joyous, brilliant, and elastic season so flattering to life and all its prospects; and when we meet the friends and companions of our youth, memory recalls the most pleasing associations; there is then that grappling of hearts, that grasping of hands, that assimilation of sentiments and that attraction of sympathies and affections which bring into play the kindliest and finest feelings of the human heart.

Men may commence agricultural operations with little knowledge and less capital, and their labours with common industry and judgment may be crowned with success, in a new country and a fresh soil; but in an old country, they would be little better than the daily drudges of the field.—Agriculture, as a science, is not to be acquired in a day, and requires in all its details, as much experience and knowledge as any other, cultivated by man. Every man of observation knows, that the same process and practice will not succeed in every soil, and if we but change our plantations, we must often change our managements. In the application of manures, judgment and experience are necessary, to know in what manner and to what soils to apply them, so as to produce the greatest and most certain results. To keep our lands in good heart, and produce good crops with the least expense, much may be done by a judicious rotation of crops. How many among the members present, (some of whom rank among the best planters in the district,) are possessed of this knowledge? Not one. We must endeavour to acquire as much of this knowledge as circumstances will permit: we must pay more attention to these things, and aim at other objects, if we wish to do more than vegetate on the soil, or if we are not inclined to abandon the home of our fathers and the places of our birth, and remove to other regions. All men think not alike on such subjects, and it is right that they should not; but for my part, I prefer the old country to the new. I take more pleasure in the improved farm, the neat and comfortable dwell-

ing, with its surrounding conveniences, than in the log huts, rude enclosures, and make-shift contrivances of the new settlers or the poineer. I love to wander amidst high cultivation and improvement, and could linger with delight around the ancient monument and venerable mansion, hallowed by time, where I could tread in the footsteps of departed worth. I am no great traveller, but I have seen a considerable portion of the surface of the Southern and Western States, and little as we have to boast of, in the way of improvement, I have seen no place that I should prefer to the upper parts of this State, for permanent habitation; none capable, with proper improvement, of being a more interesting region. There are other regions more level and fertile, but I should prefer walking on a clean, dry, firm soil, to wading in water or treading in mud. I should choose my home in the variegated landscape, with its extent of prospect, its hill and valley, mountain and plain, where the features of nature are seen in their most inviting aspect, or boldest outline. My spirits become flat, as I descend into the interminable level, or elevated as I climb the hill or ascend the mountain.

I will now, gentlemen, direct your attention to the objects which I think should principally engage your attention. The purposes of this Society are to improve the general management of our farms, to introduce new seeds and better varieties of grain; but the greatest object in view, is to encourage the culture of other articles than Cotton, as objects of profit. It must be apparent to every one of you, that the Cotton business is overdone, and cannot be long continued with much hope of profit, and without ultimate impoverishment to our lands. We have but to look around us every where to witness the desolating effects of the system heretofore pursued. If to this rapidly impoverishing process we add the utter improbability that Cotton will ever again command encouraging prices, the evident necessity of a partial change, at least, must be acknowledged by all. Flatter not yourselves that a change of policy in relation to the Tariff, will contribute to raise the price of Cotton for any considerable length of time. If the duties on foreign goods were reduced below the Tariff of 1816, the spirit of speculation might create a temporary rise, and excite delusive hopes; but six months experience would be sufficient, if I am not deceived, to dispel the delusion.

Much might be said on this subject, but it would be foreign to an address like this, to enter into a laboured discussion, and I shall dismiss it with but few more observations. Sufficient time has elapsed, I should think, to convince the great champions of the 'American System,' that by pushing it too far they have put it in danger, and instead of profit, have reaped disappointment and loss: and also to convince their ardent and zealous opponents, that the people of the South have felt less of injury than alarm. The fact is, that the friends of the system should have been satisfied with moderate protection; to this the South yielded and would have submitted. This might have been consistent with good policy, and proved successful, and any attempt beyond it will probably always prove idle and vain. A total abandonment of the protective system is not to be expected, nor do I think desired; and if there be any who wish it, and could effect it, they would bring on the country more of embarrassment than they are probably aware. The destruction of the home market, would deprive us of customers for a large amount of our Cotton, and put an end to the competition between the American and European purchasers; and they have now in Europe more than they can manufacture and sell to advantage. Connect with these considerations the fact, that there is, perhaps, in Brazil alone, a tract as large as the original United States; capable for the most part of producing Cotton; said to possess a more congenial soil and climate, where the Cotton culture is rapidly extending, and where slaves, as it is alleged, may be bought much cheaper than here: and what prospect is there of a future rise in the price of that article? We must add to this, likewise, the quantity produced, and probably the increase in other parts of the world. Another fact seems to have been forgotten or overlooked by the Cotton-planters, in their opposition to the protective system; that the duty on imported Sugar, operates as an indirect bounty in favour of Cotton. Every man who is tempted by the price of Sugar, to abandon the culture of Cotton, confers a benefit on those who continue. Withdraw this protection, and hundreds will be deterred from engaging in the Sugar-making business. If we hope, in fact, to retain, or even to obtain the command of the foreign market, we must excel others in the care with which we prepare our Cotton, and also afford to undersell them. Without this, none of the

flattering dreams of the remedial effects of a change of policy, will, in my opinion, ever be realized. I do not believe that we would for any length of time be benefited by a fall in the price of foreign goods; for they are now as low as they can be afforded, allowing for the ordinary profits of trade, incidental expenses, and even a reasonable duty, without a correspondent fall in the price of the raw material. If they can, all the information I have received, and all my calculations are erroneous. In fact, my friends, every thing warns us to rouse our energies, and endeavour to avail ourselves of the natural advantages that our country affords, and they are not few. We know but little of the agricultural and mineral resources of this state, and even in manufacturing, should it prove a part of the paramount policy and business of the United States, we possess advantages which are but little known.

During a visit to New-York, in the spring of 1827, from the inquiries I made, I became convinced that we were able to manufacture many articles, and undersell the Northern manufacturers. I endeavoured on my return to impress some of our capitalists with the same conviction, but I found them, for the most part, incredulous. I am happy to learn that the Union Manufacturing Company are about to put to the test the correctness of my observations.

After these general remarks, gentlemen, I shall leave the particular objects, which should first engage our attention, to the good sense of the Society; but I will merely observe, that the cultivation of such articles as would afford the same profit on less land, would greatly benefit the country; and that there are articles which will afford more profit, I am fully convinced.

The few experiments made in the growing of Silk, have afforded very flattering results; and I am happy to find that the family of our late respected and amiable Judge Waties, and also, as I am informed, the family of Mr. Sumter, our former worthy Minister to the Court of Brazil, have turned their attention to Silk, and have produced samples which, if I am rightly informed, will compete with any in the world.

The culture of the Vine has likewise been attempted by a few, and the results, although not so decidedly encouraging, are by no means unpromising.

I have long been of opinion that Indigo might be profitably made here, if we were to alter our modes of handling

and preparation; and it is not impossible that Indigo might be made in this State, that would equal the best produced in any other country. It is not improbable that Sugar, in particular soils, may be cultivated to profit in the middle country, and even further North. Such an opinion, I am informed, has been expressed by those whose judgment and experience are entitled to respect. The Havana Tobacco may likewise be, probably, made to advantage here, and our fellow-citizen, Mr. Reuben Harrison has raised for his own use, for several years, what is called by some the Brazil Tobacco, which has been about ten years, in this State and Virginia, and he says that he can discover no change in the quality, since he has planted it. In fact, gentlemen, the field of enterprize and experiment is sufficiently ample to engage the attention of all, and if the advantages of nature be but seconded by the public spirit and energies of man, results may be produced in a few years, of which we have at present but a feeble conception. I do not think, gentlemen, that we should aim at first at scientific farming, for our funds are not sufficient, nor do I think the country is yet ripe for it; if any thing is done in that way, we should look to general results, and not to partial manuring.

Every one knows that an acre of land may be made to produce a great deal by high culture and manuring; but such processes, according to present habits, are much too tedious and expensive to be followed as a system in our uneven and hilly country. I am convinced that many of the attempts to establish agricultural Societies, have failed because they have directed too much of their attention to manuring small spots of ground, and other things which were not calculated for general practice: and, also, because the planters were reaping too much profit from the existing culture, to interest themselves much about any other. The times are changing, and we must change with them. The time is fast approaching when science must be called in to the aid of labour, and old habits be exchanged for new. Planters of enterprize, capital and information, will lead the way, and point out the best methods of general improvement. I know, gentlemen, that I have been speaking to men, many or most of whom are capable of being my teachers in the practical business of Agriculture. I acknowledge myself to be but a novice, a mere apprentice in the trade, and am

willing to receive the advice of any one of more experience, and should be grateful to him for it.

With these observations, gentlemen, I will now close with the hope, that what we do now and hereafter, may result in promoting the happiness and prosperity of the State at large, and of this district in particular.

ART. II.—*On the Study of Plants; by* W. W. HAZZARD.

To the EDITOR of the SOUTHERN AGRICULTURIST.

Sometimes, Mr. Editor, in a leisure hour, or when driven from the business of the field, or the pleasures of the chase, by an ardent sun, a sudden shower, or dusty wind, I occupy such time in making extracts and remarks, to epitomize the information I meet with, so that it may the more easily be collected and laid up in the mind, or referred to when required.

I have been amused and instructed by the contributions of many of your friends, and think all of us should act our part on this great stage of being, for the good, the instruction or amusement of mankind; however humble the part our destiny may allot to us, or the graduate of our capacities. The truth is, the most knowing man, in the course of the longest life, will always have much to learn, and the wisest and best, much to improve. I read in Livy, says Montaigne, what an other man does not read: and Plutarch read there what I did not. Just so, the same man may read at fifty, what he did not read in the same book at twenty-five; or, in other words, we will be wise in proportion to the instruction we receive from others; because there is but two ways to improve mankind. First, by his own experience, and next, by the experience of others.

The basis of Agriculture, we all know, consists in a knowledge of plants; yet a thorough knowledge of plants is seldom acquired, as it requires application, leisure and ample funds, or we may find ourselves a mendicant in the pursuit, and as far from its attainment as the infant's innocent efforts were, to drain the ocean with a sea-shell.

A superficial knowledge, then, is perhaps preferable to no knowledge at all; for had the first planters pruned their

Cotton as it is treated in the Bahamas, a total failure must have ensued. Even when the fruits of agricultural knowledge are cherished and ripened by the sun of encouragement, or the hot-beds of patronage, there is a bitter mixed up with their sweet, or a thorn springing up with their growth, in the disappointment our best conducted operations are too apt to meet with.

But to wave metaphor, and forebode no evil, nothing can be more delightful than the acquisition of georgical information, for few things are more productive of pleasure and advantage than the cultivation of that knowledge which is essential to the successful practice of Agriculture.

The pleasure, advantage and profit is so obvious, that to point them out (at least to the intelligent of mankind,) would almost be an insult to their understanding: the following extracts and remarks are, therefore, for the use of those who like myself, have neither leisure or means to investigate the more abstruse branches of this science. Most of us know that a perfect plant consists of the trunk, or stem, the root, the leaves, the supports, the flower and the fruit: but few of us know that the trunk is composed of six organic parts; the cuticle, (or epidermis,) the outward thing covering, answering to the skin of animals; the outer bark (or cortex,) which protects the plant from the effects of cold, and should not be cut or bruised, as it produces a disease in the Cotton-plant, known as the sore shin, which is inevitably fatal; the inner bark (or liber;*) the alburnum, which is a soft white substance, situated between the inner bark and the wood, (or lignum;) the compact fibrous substance, surrounding the pith, and lastly, the pith, (or medulla,) a soft white substance, in young plants very copious, but diminishes as the plant grows; the root, called *rôt* in Swedish, or *roed* in Danish, which absorbs such juices from the earth as are pabulous, and should be nourished with great care, and soiled with large flat beds: yet I have heard planters very dogmatical in the opinion, that the tap-root of Cotton was

* The word liber, signifies the inner bark of a tree, on which the ancients wrote; and volumen was the manuscript rolled up: thus are our words library and volume derived from plants; and papyrus, from which paper is derived, was the name of a rush that grows on the borders of the Nile, and the inner rind of the stem was principally manufactured into paper at Alexandria, and the city derived great riches from its exportation. This kind of paper was used in the days of Alexander the Great, and continued in use till about the 10th century, when paper made of Cotton was introduced.

unessential; but I think it will be advantageous to plant even the green Pea, *(Pisum Sativum,)* in a single trench, on a broad flat bed, in preference to the old method of two rows parallel to each other on a level, hard surface.

The leaves of plants, like the skin of animals, are full of pores and fibres, or nerves, which serve both for respiration and the absorption of the dew, air, &c., thereby nourishing the plant, and contributing to its growth; for immerse the branches and leaves of a cotton-plant in a glass jar of water, with its roots in the air, and one will be surprized at the effects; and I have known planters to bend down the tops of their Cotton, and pull off the leaves, to make it open: but this was because they were unacquainted with the important function of nature's leafy agents.

The supports, (or fulcra,) are external parts of plants, which are useful to support and defend them from enemies and injuries. They are divided into seven kinds: tendrils, which are small strings not strong enough to stand alone, but support themselves by embracing some shrubs, as the Vine and Pea; floral leaves, which are small leaves placed near the flower to protect it; stipules, small leafy appendages situate on the sides, or below the leaf, to protect it when emerging from the bud, and should not be rubbed off; the footstalks support the leaf, defend and convey nourishment to the bud, as the flower-stalks do to the flower and fruit—the arms is a term given to the offensive parts of plants, as thorns, prickles, stings, &c.; and, lastly, the pubes, a name applied to the defensive parts, such as the hairy, woolly, or clammy substance common to certain plants, as in many in the orders of the class of Triandria.

The flower of plants consists of seven principal parts: the caylix, corolla, stamen, pistil, pericarp, or seed-vessel, seed, and recepticle; the four firstbelong to the flower, the three last to the fruit. The caylix, empalement, or flower-cup, is the green part situated immediately below the blossom, called the ruffle, about the cotton-blossom and pod; its chief use (for nature is no theorist,) is to enclose the flower with two or more leaves as in the rose, it is tubular in the cowslip, and angular in the cotton-plant. The corolla, or flower, is composed of many leaves called petals. The stamens, or chives, from stamina, the first principles of any thing, and called, by the French, cive or chives; are composed of

two parts, one long and thin, by which they are fastened to the bottom of the corolla, called the filament; the other thicker, placed at the top of the filament, called anthera, which opens when it is ripe, and discharges a yellowish dust, called pollen, or ferina, from its being like flour; and this dust falling on the stigma of the pistile, is the cause of complete fructification in all plants; the importance of preserving the flowers uninjured, must be apparent to every planter; nevertheless I have heard planters insist with a good deal of pertinacity, that to cut off the tassal of corn (the *Zea Mays* of botanists,) while the ear was filling, would improve the size of it.

The pistils, or pointals of flowers, commonly appear in the centre of the corolla, like so many columns, from one to twelve in each flower, and consists of three parts: the germ, pedestal, or base of the pistil, contains the seeds not yet arrived at maturity; the style is the pillar or thread which supports the stigma; and the stigma is the highest part of the pistil. Numerous experiments have demonstrated the importance of the stigma and pistilla in the production of perfect seed. In fact, the ancients were aware of this in maturing the fruit of the palm tree, and those trees bearing stamens only, were carefully planted among those that bore the pistils, and this precaution is necessary with the date tree. May not nature have intended the male cotton-plant for some such useful purpose, and might it not increase the quantity, hasten the maturity, and improve the quality of our cotton to let it alone? Isis, the wife of Osiris, king of Egypt, regarded not only as the inventor of the art of agriculture, but as the discoverer of the use of wheat and barley, planted them together; and Homer tells us—

> "The soil untill'd a ready harvest yields,
> "Then wheat and barley wave in golden fields."

But to return from this digression, the pericarp seed-vessels, or covering of seeds, is the germ come to maturity; of various shapes, globular as in the poppy, long as in the pod of the pea, pulpy in the plum, and pappillous in the melon. The receptacle, or base of plants, is that part which supports and connects the whole together. In some it is very conspicuous, particularly in the artichoke; the whole of the lower part we eat, being the receptacle, as in umbilated plants, these send out towards the top from the

centre, a number of branches like the spokes of an umbrella, as in the carrot, parsnip, &c.

Your's, respectfully,

W. W. HAZZARD.

ART. III.—*Notices of some new varieties of Esculent Vegetables; by* MICHAEL FLOY.

NO. 1.

Mr. Editor,—I observe that you have allotted part of your valuable work to Horticultural information, and if it is not in my power to give much information in any other department of your work, I may be able to contribute my mite in bringing forward to notice some of the new kinds of esculent vegetables, or at any rate some of the more valuable kinds not so generally cultivated as they ought to be; having been a practical gardener and nurseryman for forty years; together with my connexion with Horticultural Societies, both at home and abroad, may enable me occasionally to help in this particular with a miscellaneous page or two, as opportunity may occur, if the same would be acceptable to your readers. In doing this I shall not confine myself to any rule or order, but ramble among the flowers, fruit, or vegetables, as circumstances occur; and as new or rare and valuable articles present themselves. If it is admitted that the same soil and care will produce the superior kinds with the same facility as the inferior, we ought to direct our attention to the former, and exclude the latter; this consideration will be the motive and subject of this or any other communication I may send.

Your notice last year of my description of the *Bishop's Dwarf Prolific Pea* hath been attended with benefit in bringing that valuable Pea into notice, although upon a fair trial with the forty-day Frame Pea, sowed the same day this year, the first crop was not so early as the forty day Pea, yet the crop was far more abundant, and a large piece that I had this season, when in blossom, was a most beautiful sight; (the Peas were planted in rows about three

inches apart in the row, and two feet from row to row,) the plants did not exceed one foot in heighth, but so completely full of blossoms down almost close to the ground, that at a little distance they appeared like strawberry-beds covered with blossoms; and they continued in bearing long after the forty-day peas were over. On the whole, this Pea improves on acquaintance, and will no doubt be a universal favourite, and by sowing them at different periods, say about a week apart, a constant succession of green peas for the table may be obtained. They also stand the hot weather well, not being subject to the mildew, like many other kinds in summer. While on the subject of Peas, I beg leave to call your attention to some other sorts which are worth noticing, although not so recently introduced, they are perhaps not so generally cultivated as their merits entitle them.

The *Knight's tall Honey*, or *Knight's Marrowfat Peas;* so named, I presume, in honor of the worthy president of the London Horticultural Society, but of this I am not sure; however, it is the most delicious of all Peas in eating.—The Pea appears when dry, shrivelled and pithy, but very plump and fair when green. This is a late Pea, and while the *Bishop's Pea* is a dwarf, this, on the contrary, is a giant; frequently growing fourteen or sixteen feet high. The Peas ought to be sown in an open piece of land, in rows moderately thin, and the rows full five feet apart from row to row. They must be stuck with good stout brushy sticks, firm in the ground; the brush ought at least to be six or eight feet high. They are a very plentiful bearer, continuing long to produce their rich sweet fruit, and stand the heat much better than any other of the marrowfat kinds.

The *Dwarf Imperial Pea*, somewhat better known than the former, is, however, not so generally known but might be noticed; being a dwarf, and requiring no sticking, is a recommendation to it with many who have not the conveniences of procuring sticks. It is a large blue, oblong or oval shaped Pea, not early, but a great bearer; will stand the heat of summer well, and if sown at the same time with the early Peas, will come in after the early crops are over. It is a very sweet good bearing Pea, and make a very fine mess if cooked with string beans. The peas should be sown in drills or rows, moderately thin; rows two and a half or three feet apart.

As you notice the planting of Potatoes in your October number, but do not specify the kinds proper to be planted; and as Potatoes are an important article in the economy of life, which custom hath rendered almost indispensable to our diet; and as there are a number of sorts, and the qualities as different as there are sorts; I would beg leave to call your attention to two sorts coming fast into general use about New-York, being so much superior in quality to the common Potatoe, that they fetch almost double the price for family use in our market. The sorts alluded to are—1st, The white *Kidney*, or *Foxite Patatoe*. This Potatoe is of moderate size, not perfectly round, but rather of an oval or kidney shape; cuts firm and white in the inside; is raised for a full crop, and a good keeping Potatoe, and fine eating; rather more waxy than the following kind, but preferred by some on that account.

The second kind I allude to, is called the *Pink-Eye Kidney Potatoe*. This kind possesses all the fine qualities of the former; in shape much like it, but more generally oval shaped, though not universally so; having small pink or rather purple eyes, and occasionally streaks of purple, especially the large ones; cuts firm and white like the other; is very floury and fine flavoured; is planted as an early or late Potatoe. I have some reason to think that both these kinds of Potatoes originated in this country, but cannot be certain; however let that be as it may, they are two valuable kinds, and ought to be generally cultivated.—With regard to planting Potatoes, with us, generally, two modes are practiced—drills and hills. In the first mode, after the ground is well broken up, drills are struck out with a small one-horse plough, about two and a half feet apart; manure thrown along the drill, and the pieces containing one or more eyes dropped about six inches apart; after that, the earth filled over them with hoes; but as almost every body knows something about planting Potatoes, it would be unnecessary to say much about it.

I remain, sir, your obed't serv't,

MICHAEL FLOY.

New-York Horticultural Establishment,
Broadway, near 12th-street, Oct. 24, 1829.

ART. IV.—*Account of an Experiment undertaken to ascertain the relative value of Corn for Seed, taken from stalks bearing one and two ears; by* J. G. A.

"Anson County, (North-Carolina,) Nov. 18, 1828.

Dear Sir,—As the selection of Seed-Corn appears to be now under the consideration of your correspondents, I will cast in the little experience which I have in the matter.

For some three or four years past, I have been in the habit of selecting my Seed-Corn from stalks bearing two or more ears, and I think my Corn has become more productive; *i. e.* every year there is an increased number of stalks bearing more than one ear. But in order to test satisfactorily the utility of the practice, I this year instituted an experiment on a small scale, and upon principles (so far as I know,) somewhat new.

My seed for this experiment was taken from a stalk bearing five ears, on one primary pedicle, with four secondary ones springing from it; each bearing a small well-filled ear. The seed from one of these ears was planted at the usual time of planting here, say the 1st of April, in ten rows, twenty hills long, making two hundred hills; the Corn came up well; was bit down soon after by the frost, yet none of it was entirely killed; it was ploughed and hoed only twice—this you will say was not work enough—admitted. But my object was not to force this patch of Corn to bear by superior management, but to leave it, as much as circumstances would justify, to its natural habits, and see what characteristic would be developed; and this I think the fair way fully to test and forever put to rest the question:—Do vegetables inherit the properties, inclinations, habits, &c. of their parent vegetables?

The result has amply verified, and that to my entire satisfaction, the common theory, that vegetables, as well as animals, do strongly inherit the properties and features of their parent vegetables; for in this instance, and under such poor tillage, there were not more than ten stalks out of the two hundred but what bore more than one ear.

Another part of my experiment that I believe to be new, was this: During the time my Corn was tasselling and silking, and before the ferina had arrived at that state at which the fructification takes place, I went several times through

my patch of Corn, and carefully examined each stalk, to see if the shoots on it promised to perfect more than one ear, and from every one that did not, the tassal (the male bloom,) was carefully drawn, in order that the variety which produces two or more ears, might not be fructified by the ferina, from that variety which produces only one ear.

By adopting this plan, and attending strictly to these principles for three or four years, I think any variety may be obtained pure, without the least admixture of other varieties; yet it is indispensably necessary that the experiment be made remote from any other Corn, for certain it is, that the ferina may be conveyed by insects and the atmosphere to a considerable distance, and thereby get mixed.

Likewise, sir, I made an imperfect experiment of the relative value of three kinds of manure on the same patch of Corn, to wit: Three rows of it were manured with hog-pen manure; three other rows with crude cottton-seed, and the remaining four with sheep-dung—of the latter, only half the quantity of the two former was applied. The manuring was performed at the first, working in the furrow, each side of the hill.

A few days ago I gathered the Corn myself, and what was my surprise, sir, to find the Corn, where the hog-manure was put, to be as light, or nearly so, as rotten corn; on the cotton-seed, it was heavier, and from the sheep-dung, much the heaviest.

I am conscious of using too many words to express but little; but, sir, I could not say less to be intelligible.—Make what use you think proper of this, or any part thereof.

J. G. A.

ART. V.—*On the Cultiation of Silk; by* P. E. PEARESON.

"Winnsborough, 10th Sept. 1829.

To the EDITOR of the SOUTHERN AGRICULTURIST.

Sir,—I take the liberty to inclose you a small skein of Silk, manufactured in my family. The worms are of the second crop this season, and were exclusively fed upon the common wild mulberry. We attempted two small crops, by way of experiment. In the first, the worms formed their

cocoons in something short of six weeks; in the latter, the cocoons were finished in about four weeks. The second crop was in every respect better than the first; much fewer of the worms were diseased, and the cocoons were larger and more perfect.

A neighbour of mine, Col. Jesse Harris, raised on his plantation a spring crop, which yielded about 5000 cocoons, on the white mulberry. A specimen of his Silk was sent to Baltimore, and pronounced of superior quality. Other gentlemen in our neighbourhood are making preparations for raising Silk on a small scale. The wild mulberry is very abundant in all the upper country, and the white and black are raised from the cuttings and seed without difficulty. The specimen inclosed was manufactured hap-hazard, as no directions were procurable, but the mixed up affair, published under the eye of the late Secretary of the Treasury. If a market could be conveniently obtained for cocoons, I think the production of them might be safely recommended to the inhabitants of the sandy regions of the middle country, as a highly profitable employment. The foreign mulberry tree well deserves the attention of planters and farmers, for besides yielding the proper food for the silk-worm, its abundant fruit is excellent for poultry and hogs. The black (Italian,) began to ripen its fruit as early as the 20th of April, and continued bearing as late as the 10th of August.

P. E. PEARESON.

NOTE.—The specimen of Silk acompanying this letter was pronounced, by judges, to be of excellent quality, being very even and strong. An office for the purchase of cocoons has been established at Philadelphia.—*Ed. of So. Ag.*

ART. VI.—*An attempt to simplify the Culture of the Grape; by* GEORGE J. F. CLARKE.

"St. Augustine, 30th May, 1829.

(Continued from page 512, vol. ii.)

It is advisable always to plant young vines pretty near, as they thus give in their younger years, a larger product for the space and care; and can be re-transplanted with so lit-

tle risk and labour at any time; and this becomes the more inviting when we reflect, that they get more valuable as they grow older, even to a very advanced age; and, that then their value can be continued far beyond, by attention to their capability of reproducing succeeding bodies. Nature will see to their reproduction of roots.

The grape vine will bear much more cold than what is generally supposed; and as to heat and drought, projecting their roots down to abundant and cool water, and having large pores to insure its liberal supply to all parts of their foliage, they appear to exult in the one, and disregard the other, while all other plants around show marks of exhaustion.

Too much importance is often attached to the choice of soils, and their preparation for the grape vine, while our better kinds of pine-bearing lands, light sandy hammocks, and well-worn high-ground cotton and corn fields, will produce sweeter and better flavoured fruit than highly-manured gardens, in what is commonly termed strong deep soils.—A similar result is evident in our sweet-oranges, sugar-cane, melons, &c. I would object to a stiff clay rising to the surface; and be doubtful if it approach to within two feet of it; not that I know its harm, but its compact character offers a bad presage. In planting, if they have roots, they require that holes be opened with a spade for their reception; but if merely cuts, they need no more than to be dibbled in with a crow-bar.

Preparing their stands with manure! I believe I have in my time, lost more fruit trees, of many kinds, by manuring about their roots when planting, than from all other causes put together. It attracts, protects, and favours the propagation of insects and reptiles that prey on, and otherwise injure the plant; while its stimulating warmth, the mutable effect of every transition of weather prepares it a victim to early and late frosts; and its sure escape, by decomposition and evaporation, leaves the stand of the plant a hollow exposed to the shake of winds, and assuredly to be sapped by the spoiling air of dry weather. I am not pointing to annual plants, those we can guage by not planting the summer kind in winter, nor the winter kinds in summer, and dose them accordingly; nor is my reference directly made to half a dozen perennials in a co-

vered garden, with a well and watering-pot always at hand, but to such, as in numbers, have to stand in the fields all seasons and all weathers; and whose home is a subsoil of which we know but little.

Much is said, too, on the subject of renovating exhausted soils, and fattening those we suppose originally poor. Here is surely a mistake in blending the wants of all annual and perennial plants in one. The soil wanted by the grape-vine is a sub-strata that our tools did not reach, nor will our manure, without immense labour; nor does either appear necessary while huge and wholesome trees grow abundantly in the same, affording evidence that it was not, nor will be, poor for such subjects. And we further see, that where we have exhausted, or are exhausting the incumbent strata, the trees seated below improve in proportion to the greatest extent of that work; and that no longer those knees and crooks of roots, which in a primitive or long neglected state of the land, protruded through the surface, in search of atmospheric air. I can suppose no other cause for their showing no further disposition to do so, than that cultivation above lets it down more abundantly than was obtained before; and as to a subsoil that cannot yield thrifty deep-rooted perennials, spontaneously where the God of Nature has not forbidden them to grow, as we suppose in our prairie lands, if such there be, it must be poor indeed.

Moreover, the stand of the grape-vine, like all other deep-rooting perennials, want no softening; their roots, we know, even split stone walls, disjoin and perforate rocks, in their descent in search of water. In Catalonia, and other parts of Spain, where the grape flourishes in as much perfection as in any other part of the world, the arable lands are reserved for grain and pasturage—the density of the population requires this, and the vine occupies the stony tracts.—The crowbar and auger prepares holes deep enough for the vine-cuts, the same dust fills up the interstices, and then they are wetted and left to their own exertions. Cotton, a mere shrub, has been very successfully cultivated in the Bahama Islands for many years, much in the same way, on a rocky surface; and I have already informed you of a seed of the Pride of India, that it, in its passage from a seed to a tree, split open for me, with its comparatively soft roots, an oven of some tons weight of masonry, and moved the half of it in a body, from its foundation, laterally.

Then, in conclusion, clear off the ground and break up the surface; dig in the grape-plant, if they have roots, or dibble them in with the crow-bar, if they have none. Let the cuts be from sixteen to twenty inches or more. Put in two at each station, with two good buds of each above ground, and tie them to the foot of a stake, two or three feet high, placed behind them to steady and protect them from incautious feet; separate their lower ends about one foot apart, by dibbing the holes with a crowbar, slanting in opposite directions. Before planting, dip the upper end of each cut in hot pitch, half an inch, and quickly redip it in dry sand—this saves in the evaporation from above; and, on the principle of syphon, checks escape from below. Cut off, slanting, a small piece of the bottom end, just before putting them into the ground, to bring the weeping wood in contact with the soil. The distance I plant for the vineyard is six feet eight by six feet eight, for the more vigorous growing kinds; and six feet eight by five feet, for all others: the first gives nine hundred plants to an acre, the last twelve hundred. In ten or fifteen years it will, probably, be advantageous to removet he half of them to as much more ground; that can best be done on the quincunx order.

The first year let them run wild, but keep the ground clean, and the surface stirred by light ploughing or hoeing. The second, begin to trim and fashion them up to the form in which they are to bear. The third will generally complete these arrangements.

I would, after a vineyard has begun to flourish, if manure was convenient, occasionally spread a little of it on the surface, and work it in with the plough or hoe; not with a view to its descent to the roots of the vines, but that its leavening quality should contribute to keep the superstrata open and loose, in order to the more free admittance to their roots of atmospheric air.

With much respect, your obed't serv't,

GEORGE J. F. CLARKE.

ART. VII.—*Observations on the Pride of India, Hot-Beds, Bearded-Rice, and Crab-Grass Hay; by* SUMMERVLILE.

(Communicated for publication in the Southern Agriculturist.)

Sir,—I take great pleasure in reading the "*Southern Agriculturist.*" I consider my ability as a writer to be very limited, though bred both to agriculture and horticulture in England, and during the number of years I have been a citizen of the United States, a period of 45 years, I have been in the gardening and farming line. I found that there was not encouragement for gardening, and as for experiments, and any new method of cultivating a farm or cropping a plantation, it was entirely out of the question as I could not use arguments to pursuade any landholder to follow any other than that which his father and grand-father had taught him. The art of agriculture and horticulture can never be complete, owing to the many new discoveries which are daily making. There are many gentlemen who have a thorough knowledge of the theory, but the practical part throws a damp over their inclinations. Perseverance and industry will overcome great difficulties—experiments well-planned, must be persevered in.

I admire the account laid down in the *Agriculturist* of the Pride of India. I have known the good effects of it as a vermifuge to expel worms not only in children, but grown persons; only a few years ago the use of it was cried down as a vermifuge. It is a powerful medicine to expel bots and worms in horses—it will bring worms from children and adults, when other medicine has failed. A bedsted made of Pride of India, will not be infested with bed-bugs. A decoction of the leaves, berries or roots, (the roots can be got at any time,) will destroy insects on fruit-trees—to be applied with a garden syringe, by which means the under-side of the leaves are washed as well as the upper; it is also admirable, to sprinkle tobacco-plants, from the nose of a water-pot. In short, Providence has supplied us with the best and safest remedy ever known for destroying worms, caterpillars, bugs, and lice, which destroy much of our garden crops. The Pride of India trees ought to be cultivated, and more esteemed than they in general are—they draw from the atmosphere which floats around us, the greatest quantity of poisonous air.

How to prepare the roots of the Pride of India, as a vermifuge, is not generally known. My knowledge of its efficacy is since the year 1794, and if the directions are scrupulously attended to, success and safety are certain and secure. Dig of the largest roots in proportion to the quantity of the tea to be used; clean the root from the earth; scrape off with a knife the outside bark—under it you will find a thin red bark that must be scraped clean off, if there be any bad quality in the root it is in this red bark; let it be carefully taken off, and entirely rejected; under the red bark you will find a thick spungy bark, nearly two-eights of an inch thick; of this take three handfulls; put it in a clean pot with three pints of water; boil it away on a slow fire to one pint; strain the liquor; when cold add half a pint of honey and a wine glass of good gin. To a child about a year old, give one table-spoonful, three times a day, morning, noon and night; my practice has been to give one table-spoonful for every year the child is of age; it sometimes operates either upwards or downwards; in that case let it be discontinued, or the dose diminished; if it do not vomit or purge, it is to be given two days running; the third day to omit it, then begin again, and give every other day; the worms will come away after taking but a few doses, and when you think they are nearly all expelled, discontinue the medicine; it, however, seldom vomits or purges—in that case, a day or two after the worms are expelled, a dose of castor-oil may be given; the worms will come away from the person without any excitement to have a passage. The medicine can be given when a child is labouring under any other disorder.

Hot-Beds.

The leaves of trees collected in proper quantities, make good hot-beds; these, properly made, afford a more growing heat, being less violent than horse-dung. After the heat of a hot-bed declines, and it is proper to renew the heat, the bed can be lined all round, two feet broad, with fresh horse-dung; the dung is to be taken from stables, where the horses are punctually attended with litter; in making hot-beds, the dung must be well shaken with a pitch or hay-fork, and by no means to be trod down; treading the bed as it is made up, makes it to settle down uneven, and afford an unequal heat. When the hot-bed has done its part, it

makes an excellent manure for gardens, particularly flowers; it is by no means a valuable manure for field-crops.

I had the management for six years, of a nobleman's gardens, when there was a pinery 144 feet long. Houses for forcing peaches, cherries, gooseberries, currants, strawberries grapes, flowers, &c.; a green-house, for all the tribe of green-house plants, and 36 melon and cucumber frames; also, a wall for grapes, covered with oiled paper frames, used occasionally. All those forcing establishments were supported at a great expense. During my observations, I was able to judge of the value of oak leaves; the heat of which is constant, whereas the heat of tanner's bark generally turns cold in a very short time after its furious heat has gone off; the decayed leaves make good manure, they make the richest, and of all others, the most suitable for a garden; but this must only be understood of leaves after they have undergone their fermentation, which reduces them to a true vegetable mould, in which I experimentally know that the food of plants is contained; but whether that food is oil, mucilage, or salt, or a combination of all of these, I leave to philosophers to determine. This black mould, of all others, is the most proper to mix with compost earth; I have used it for most plants that grow in pots; for flowers it is most excellent; also, to be laid on the quarters of the kitchen garden, for which purpose it is highly useful, and produces the finest flavoured vegetables. Oak leaves mixed with dung, make excellent hot-beds.

Bearded Rice.

About fifty years ago, a nobleman in Europe got from Siberia, barley-seed. My father superintended a very large farm belonging to that gentleman, he being a thorough-bred farmer. His decided opinion was, that the grain was barley, and there was no contradiction to it, and I do really believe the bearded rice is the Siberian barley.

Crab-Grass Hay.

I have made of crab-grass hay, off cow-pen land, four tons and nearly a half, off an acre of land. A good stock of cattle is very advantageous to a farmer, if they are properly attended and pent every night, in order to encourage them to come home during the summer. Fires ought to be made in the pen. I have been in the habit of penning cat-

tle and sheep in the same pen; fifty head of stock cattle and eighty head of sheep, will manure half an acre per week; immediately as a new pen is made, the old one must be ploughed or dug up, to cover all the dung, to prevent evaporation; this cow-pent land will produce abundant crops for three years. Planters, generally, are by no means attentive to stock.

(To be continued.)

ART. VIII.—*On the Rust in Cotton; by* A GEORGIA-PLANTER.

To the EDITOR of the SOUTHERN AGRICULTURIST.

Sir,—In reply to your inquiries, I furnish the following statement of facts and opinions, as the result of my experience and observations. On the point which have received my attention, and induced investigation, I subjoin with pleasure a communication from "*An Ogchee Planter*"—should either be useful, I shall feel gratified.

The first season my fields were seriously injured by rust, was that of 1828. It made its appearance about the first of August, and by the end of that month, not a green leaf was to be found in one entire field of forty acres. In other parts of my crop it occurred, but to a very limited extent—previous to the rust, this field promised a product of one hundred and fifty pounds to the acre; I however do not think that twenty pounds were picked in. The land is generally high, and was originally of a good quality, but has been planted a number of years—for the last fifteen, never oftener than every other year—sometimes in corn, and at other times in cotton. The year that it lay out, the stock ranged upon it—the growth weeds, grass, and fennel which were listed in, in February. I have, in particular, alluded to this field, as I have been, and shall continue to be, employed in preparing it for the ensuing crop, by a free application of the most approved quality of marsh mud. I have divided my experiments into three classes, viz:

First,—Spreading the mud whilst green, and listing thereon.

Secondly,—By listing upon the salt marsh grass in its green state.

Thirdly,—By placing forty loads of mud, (each containing about three bushels,) at regular distances, upon a quarter of an acre.

From the result of this experiment, I am in hopes of furnishing *facts* calculated to determine the most judicious manner of applying the mud as a manure.

My present crop has not been injured by rust; in the early part of the season it promised an abundant harvest; the excessive rains in June and July, changed the prospect, and the cotton ran up to an unusual height, with but little fruit. About the 15th of November I *topped*—I mean by topping, pinching the upper bud off. The benefit became apparent; the growth was checked, and the plant *umbrelled*, or branched out, and produced a bountiful top crop. Any information I can obtain assistant to your inquiries, by my own observation, or that of others, will be readily communicated. Experience is now with planters almost the only school of instruction; but by publishing its lessons, as you are doing, investigation may correct our errors, and clear the way for the unpractised. My interest and my feelings unite in best wishes for your success.

A GEORGIA-PLANTER.

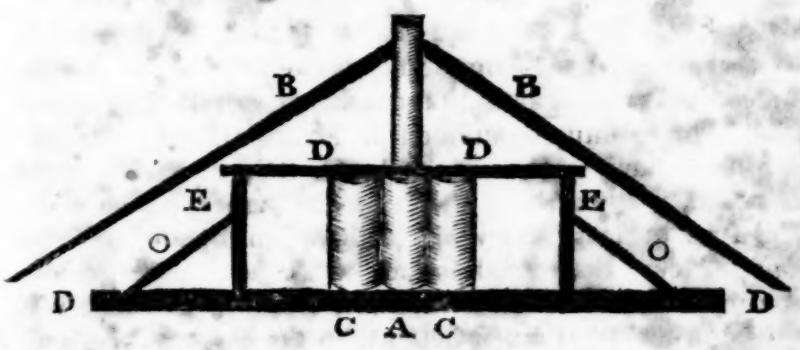
ART. IX.—*On the Culture of Sugar; by* A LOUISIANIAN, *of Natchez.*

"Louisiania, Sept. 7th, 1829.

To the EDITOR of the SOUTHERN AGRICULTURIST.

Dear Sir,—I remark in your number for March, 1829, two communications on the growth of the sugar-cane; one from my esteemed friend, J. Spalding, of Sappelo, and the other from Mr. John Couper. From Mr. Spalding's letter I learn for the first time, that attempts are making in South-Carolina to introduce the sugar-cane, and that it will probably become, in a few years, one of her staples. With the example of our State before the intelligence, which has ever characterized the planters of South-Carolina, it is astonish-

ing that this very lucrative culture should not long before this have been introduced among them. There is nothing wanting in your climate, and but a little attention to manuring your poorer lands, requisite to make South-Carolina an extensive Sugar growing State. The idea that once was prevalent in this State, that none but extensive capitalists could profitably plant Cane, has by the experience and energy of a few enterprizing planters, of but limited capital, been completely exploded. In good truth, sir, it does not require, for a prosperous and profitable commencement, so much capital as is essential to the advantageous cultivation of Cotton. There was a time when I believe it was honestly believed by many of our planters, that sugar could only be made in a close and extensive brick building. At the present time more than one half of the sugar made in Attackapas is made in pole cabins separated into two rooms, in one of which the kettles or boilers are placed, and the other constitutes their purgeory. The mill is placed under an open shed, attached to the end most generally of the building; many use rollers from the live oak; these answer tolerably well for the Otaheite and creole cane, but the ribbon is rather hard for these temporary establishments. I will mark you a plan of most of these mills with my pen, in hopes that it may be beneficial to some of your smaller planters.



A. is the centre roller, from which rises a shaft, to the upper end of which is attached the two sweeps marked B. to these sweeps which are usually about 18 feet in length, the horses or oxen are attached.

The two upright posts marked C. C. are the two ad-

ditional rollers, which are moved by the turning of the centre one.

The pieces marked D. D. are the sills, and the plate called girders into which the ends of the rollers are placed, with suitable inks and gudgeons.

Those marked E. E. are the upright posts connecting the girders—and those marked O. O. are the braces which are applied on three sides of the posts. In order to gain a correct idea of this mill, you must suppose it elevated six feet from the floor, upon which the boilers are situated, but the floor upon which the horses perform their circle, should be upon a level with the sill or girder supporting the mill, by placing your vat for the reception of the expressed juice, immediately under the rollers or mill; you can then pass your pipe, which is to conduct it into the boilers immediately under the floor upon which your horses walk ; this saves the very great trouble of bailing by hand from your receiving vat into your boilers, which, by this method, are filled immediately. This Mill with the boilers, the coolers and the house, with your molasses vat, ought not to cost more than 500 dollars, two hundred of which can be saved by all those who can make a water tight vat, and build a log cabin, which latter I believe is pretty well understood in Carolina. For the encouragement of the timid, I will say as good Sugar as I ever saw was made on a piece of good land by one in this State, under a palmetto camp, and in three iron pots,—under this shed, an old man, his little boy, and his aged wife, manufactured in one season with these simple means twelve hundred pounds of most excellent sugar, from about three quarters of an acre of cane. The quantity mentioned in Mr. Spalding's communication as having been made by Captain Stockton, from new land, is astonishing ; with us our lands must be disciplined by at least four year's cultivation before we can hope for more than 1000 pounds to the acre or arpent.—You may assure your Carolina readers that the cane will withstand the frost much better than the Indian Corn, and should it be cut down it will spring quicker and more vigorously than the latter mentioned plant.

LOUISIANIAN OF NATCHEZ.

ART. X.—*On the manner of boiling and preparing the Sugar, from the juice of the cane, being an extract of a letter from Col.* PROCTOR, *to the Hon.* WM. D. MARTIN; *(communicated by the Barnwell Agricultural Society.)*

"Barnwell Court House, November 7, 1829.

To the EDITOR of the SOUTHERN AGRICULTURIST.

Dear Sir,—The Farmers' Society of Barnwell District, request you to publish in the Southern Agriculturist, the following extract of a letter from Col. Proctor of the State of Louisiana, to the Hon. Wm. D. Martin, a member of our Society, on the manner of boiling and preparing the Sugar from the juice of the Cane.

Your's very respectfully,
JENNINGS O'BANNON,
Secretary Farmer's Society.

"I regret exceedingly that it is not in my power to give you correct information of the boiling of Sugar in *one pot*, we never use less than four kettles; but I should suppose by pursuing the following you might succeed. After the juice is extracted put about a gill of lime to about fifty gallons of the juice: keep a moderate fire at first under the pot, increasing it gradually for a couple of hours, and then give as much fire as possible, until the juice is sufficiently boiled, skim the kettle as long as you perceive any dirt in the scum, and with a mop made of corn shucks swab all round the sides of the kettle, so as to remove all the filth possible.

"After the kettle has been boiling an hour or two, you will be able to judge whether you have lime enough or not by the scum. If lime enough, the scum assumes the appearance of a heavy shower of rain drops falling into it. You will also perceive *flakes* in the scum resembling sheeps' wool, by which name we call it—when this rises pretty generally over the entire surface of the kettle, it has a sufficiency of lime; should there not be lime enough, the raw material should never be thrown into the only kettle, the lime should be put into a bucket, and one ounce of the hot sirup thrown into it well stirred and allowed to settle a little while, and in small proportions thrown into the kettle until the scum assumes the appearance mentioned above, when the sirup is sufficiently boiled insert a ladle bottom-up into the kettle, draw it out suddenly: the grains of sugar will

be discovered on the bottom of the ladle before the sirup runs off entirely; when the grains appear very thick take it out of the kettle and place it in shallow wooden vessels to cool and granulate.

"Our first battery of Sugar takes from four and a half to five hours to boil, after that from 1½ to two hours; this is owing to our always having hot and clean sirup to put into the last kettle from which the sugar is discharged. Juice weighing from 8½ to 10 degs. makes the first quality of Sugar; from 7 to 8½ tolerable; any under 7, Sugar cannot be made. Molasses requires nearly as much boiling as Sugar, the same process is required."

ART. XI.—*On keeping Cattle during winter; by* E. A. HOLT.

"Richmond Co. (Ga.) August 15, 1829.

To the EDITOR of the SOUTHERN AGRICULTURIST.

Dear Sir,—Your letter to me of the 21st May was received in due time. I must apologize to you for not replying to it before this late date. I am but a young planter, and of course have not much experience, but what I have I feel willing to make known—going upon the principle that "every little helps." I feel interested in the work you have undertaken, and hope you will meet with the aid you require—liberal contributions to your paper from your readers.

I will make to you a statement of the manner in which I managed my cattle last winter. The mode I adopted led to such advantageous results to me, that I am induced to give it to the public, hoping those who may approve and pursue my plan, may be pleased with it. After the fields are pretty well eaten out in the fall of the year by the stock, I commence penning my cattle at night in an half acre enclosure, allowing them in the day to seek for food in the fields or woods. The enclosure I have covered about a foot deep with leaves and other vegetable matter I can collect from the woods and elsewhere, for the purpose of making manure, and as soon as I find this well trodden and mixed, which will be in a month's time, I have it thrown in heaps, and the enclosure again replenished as before. I

feed my cattle on shucks, and in the enclosure I have racks for the shucks to be thrown in, six racks ten feet long is sufficient for seventy head of cattle, the number I wintered.

I keep salt throughout the winter by the cattle, so that whenever they feel a disposition to take salt it is ready at hand for them. I made use of the rock salt which I obtained in Augusta, the lumps weighing from 30 to 100 lbs. In the centre of the enclosure I had placed a mortar, in which I put a lump of this salt, and there let it remain unless it looked like raining, and then I had it taken out and placed under cover. It would be best to have a shelter made over the salt, as it is sometimes neglected and wasted.

Persons need not apprehend that the strong cattle will prevent the weak ones from going to the salt—they will of course take possession of the salt at first, but in a few days the weakliest yearling will get as much as he wants. The rock salt can be had in Savannah or Charleston, and if this cannot be come at, some means may be had of giving the ground salt without wasting it. I will now take occasion to put a query—What is the best manner of consolidating salt or of forming a mass best to answer the purpose of the rock salt?

The improvement, if it may be considered as such, is in the *salting my cattle.*

I saved a great quantity of manure and my cattle looked very well in the spring—better than any I saw. I lost but one, and that was an old cow, which was caught in the river swamp by the fresh; while numbers of my neighbours cattle died of disease or *something else.*

The same system of salting the cattle I pursue in the summer.

I am respectfully,

ELBERT A. HOLT.

ART. XII.—*Increasing the Cultivation of the Irish Potatoe; by* CAROLINIENSIS.

To the EDITOR of the SOUTHERN AGRICULTURIST.

Mr. Editor,—As nothing contributes more to the resources of a state than the variety of rich productions which are cultivated within its borders—so I would call your at-

tention to the *Irish Potatoe*, and would request you to use your industry and experience in suggesting the best mode for its culture. The porters and coal heavers of London who are called the strongest men in England, have been said to be chiefly nourished by the potatoe. Substantial farmers and country artificers in Ireland live chiefly on *milk* and *potatoes*.—The same piece of land which in Ireland would subsist four persons on wheat, would subsist twelve on potatoes. It is to the potatoe that the superior population of Ireland is attributed. So long says M'Culloch as potatoes are used only as a subsidiary species of food, their introduction serves to improve the condition of the labourer. Although I do not mean to propose to introduce the potatoe to banish other articles of food, yet I think its introduction will be essentially serviceable as a part of the food of our negroes. Your obedient servant,

CAROLINIENSIS.

P. S.—It comes in quite *apropos* to those who make short crops or do not plant their provisions.

ART. XIII.—*On Fruit Trees and Garden Seeds; by* AN INQUIRER.

"Charleston, November 10, 1829.

To the EDITOR of the SOUTHERN AGRICULTURIST.

Sir,—In the September number of the Agriculturist, I observed a letter from Mr. Ingraham, on the cultivation of the peach tree, in which he says, "I never import my peach trees, having been uniformly unsuccessful." I agree fully with Mr. Ingraham in the remark, and it is applicable to almost if not to all imported fruit trees. I have sir, in my day, imported large quantities of peach, plumb, pear, apple and apricot trees, and I have never been repaid for my trouble and expense. I cannot, and do not pretend to account for it, but so it is, that they never thrive after being planted in our southern climate, and I believe the best, if not the only way, to obtain a good orchard is, to import a few trees of such varieties as are wanted, and to graft and bud from them, on native stocks. I have tried both ways, and I have no hesitation in recommending the

latter. I am not singular in my opinion, nor am I the only one who has been unsuccessful with imported trees. I know many of my neighbours, who have fared no better than I have done. But we are not all acquainted with the various processes of grafting and budding, and if we were, there are very many who have neither the time or inclination, but who still wish to obtain good fruit, and would cheerfully compensate others for their trouble. In fact, sir, we want a nursery establishment among us, and I verily believe that a well conducted establishment of that kind would handsomely remunerate the proprietor. There are several reasons in favour of this:—1st, We would be certain that we would reap some reward for our expense and labour, for as all the trees would be grafted necessarily, on native stocks, they would flourish and in all probability produce abundantly, not having the shock to undergo of being brought from a cold to a very hot climate,—this change is, I conceive, the principal, if not the only cause of the unthriftiness of these imported trees. 2dly, many of us will be able to select for ourselves, for it is not to be concealed that we very often have very small and inferior trees sent us, when our orders are given to foreign nurseries. Much of the money now sent out of the state for fruit trees, will be kept at home, and much better trees furnished us, as far as productiveness is concerned. Thus will we imitate the "American system," keeping our money at home—to reward native industry, and at the same time furnishing better articles fully as cheap, perhaps cheaper, than those imported. The facilities for establishing a nursery here are very great, not only the fruit and ornamental trees of the northern climates, could be introduced, but those of a much warmer climate, and be kept and protected, at much less expense than at any other nursery in the United States. Compare their long and severe winters with the short and mild ones of Carolina. How many plants and trees which they are obliged to protect with the greatest care, will flourish with us, without any shelter whatever, and how many could be kept in greenhouses, which with them require all the aid of the hothouse. But although such large sums are drawn from us yearly, for fruit and ornamental trees, yet this is nothing compared to what is annually sent out of the country for the purchase of garden seeds, the greatest part of

which can be raised among us, of the very best quality. Our seedsmen do not pretend to vend seeds which are the growth of these States—You will see on their signs "Northern and English Seed Store," and all their seeds are from these quarters. Nor are they to blame, for ignorance and prejudice have led us to believe, that better can be imported than raised among us. But I deny the fact, and it is high time, that we should be better informed on the one point, and overcome the other. The word of an anonymous writer, will not perhaps be taken, but a reference to any of our market gardeners, will satisfy any one that nearly every variety of seeds which we can cultivate, can be raised of as good quality as those purchased at the stores, and many prefer raising some few to purchasing them, though it interferes too much with their regular business, for them to attempt raising all they want. Perhaps it may be in your power to substantiate what I have advanced, as from the few pieces you have favoured us with, you appear to have paid particular attention to horticulture. If so, I beg that you will inform your readers, (which by the bye you are in duty bound) whether what I have stated be correct or not, and what seeds can be raised in this climate with success. I have had some little experience myself, but I do not wish to be particular at present, for fear I may not be correct in all, and I should not like to be laughed at, although I write anonymously. Perhaps hereafter you will hear more from me on this subject.

AN INQUIRER.

OBSERVATIONS BY THE EDITOR.

For the very reason "An Inquirer" has given, we would have preferred remaining silent, and had we not been so particularly called on, we would not at present have offered any remark; not that we think the subject one of no importance, but because we are not fully prepared on it. We are now investigating many subjects, and prosecuting several experiments connected with Southern Gardening, and had we a choice we would have preferred waiting until we could have spoken decisively on some of these points, which are interesting for us to be acquainted with. Thus called on, however, we will state that we have likewise failed in our attempts to establish orchards with foreign fruit trees. Some of these were from England, but the principal part were from the Northern States. We found the peach to thrive better than

any other, and next to this the pear, but we have had no success with either the cherry, plum, apricot, apple, or almond. Perhaps we may not have been sufficiently attentive to them, and should like, therefore, to hear from some of our readers who have tried the experiment, what the result has been with them. We think with "An Inquirer," that it would be a considerable acquisition, if we could have a good Nursery established among us,—but we fear that, like those who purchase garden seeds, we shall always prefer trees from abroad, although we may be able to obtain better at home. There is already a Nursery on the King-street Road, established some years ago by Mr. Noisett, but we fear he does not receive the encouragement he deserves. Let those who agree with "An Inquirer," bestow their patronage on this establishment, and in all probability it will soon be what we desire.

With respect to garden seeds we can speak more positively. We have paid some little attention to several of the departments of gardening, and we know that there are very few, if any seeds, which may not be raised among us, as fine as can be imported. It only requires that a proper selection be made of those plants designed for seed, and that care be taken to place them at sufficient distances from all of the same tribe, to prevent any contamination by the pollen of other varieties. It has been owing to carelessness, and a neglect of these precautions, that degenerate seeds have been obtained, (which have been attributed erroneously to the climate) when good and true kinds were expected. The *best and earliest* plant and fruit should always be reserved for seed. We would not wish, however, to be understood as giving it as our opinion, that no importations of seeds need take place. On the contrary, at certain seasons of the year, *American* seeds will not answer, and to have the vegetable at all it is necessary to have *European seed.* This remark refers particularly to the cabbage, carrot, turnip, and spinage. Turnips in the spring of the year, if grown from English seed will not be apt to run to seed. The Spinage sown at the same time, will continue longer fit for use, if the seeds be European. Carrots sown in May for autumn, and cabbages in September for spring, should always be European seed, for whilst those from American seed are sending up seed stalks, and becoming worthless, the others will remain perfectly good, especially the cabbages, which will form fine heads in the spring, and so remain, whilst the others are all in bloom. There are other periods, when European seeds of the same vegetables will not answer, and the American only ought to be sown.

PART II.

REVIEW.

ART. I.—*On the culture and uses of Potatoes ; accompanied by Engravings, and Practical Directions, explanatory of the best modes of raising, preserving, and using that Root: proving, that Great Britain, by extending the culture of potatoes, can be rendered completely independent of other nations for the necessaries of life ; and pointing out a variety of new uses to which potatoes are applicable.* By the Right Honorable SIR JOHN SINCLAIR, Bart. Edinburgh. 1828.

THE Agricultural community of Great Britain are indebted to few men, more than to Sir John Sinclair. Whilst President of the Board of Agriculture, his exertions in its behalf were unwearied, and even since his retirement from that post, he has continued to collect and publish information, in many instances, of the greatest value to it. The work, the title of which heads this article, is the last from his pen, and does equal credit to his head and his heart, whether we consider the value of the information given, or the motive which influenced him in giving it publicity. Great Britain has long ceased to produce a surplus supply of food for her population, and she has become, in some measure dependent on other countries for so essential an article. In years of abundance she has little to spare, and in those years when unfavourable seasons have blighted the hopes of the husbandman, the distress occasioned by the deficiency in the crop is often alarming, heightened as it is by the high prices which grain must obtain, before the ports are opened for its importation. The plans proposed to relieve her distresses, have been many and various, but they have generally been of a temporary nature, and not calculated to eradicate the evil :—this could only be done by increasing the supply of food at home, and for this purpose Sir John recommended the more extended cultivation of potatoes, even as far back as 1795. To give greater weight to the recommendation, and at the same time to furnish the necessary information for their culture, to many who were

unacqainted with it, the Board of Agriculture passed resolutions recommending "an increased cultivation of that valuable root the potatoe," and appointed a committee, who collected and published all the information which could then be procured on the subject. The effect was highly beneficial. "It was calculated that fifty thousand acres additional were employed in the production of potatoes that year, (A. D. 1795) and that multitudes were fed upon that root who scarcely before ever tasted it"—and our author believes that had government cordially co-operated, and the cultivation been extended to one hundred and sixty-five thousand acres, none of the miseries resulting from that scarcity which was afterwards experienced, would have been felt. He therefore justly views this as a subject of the greatest national importance, inasmuch as it will render that country independent of foreign supplies, and to further so desirable an object, he has collected a large fund of information relative to the culture and uses of this root, drawn not only from the report of the committee, but also from an extended inquiry which he instituted not only at home but also abroad. The work is prefaced by an "Advertisement" from the author, drawing the attention of the reader to the facts—That 1st, The large quantities of "dung or putrescent manures" which were hitherto thought essential in the cultivation of the potatoe, are not now considered necessary, as it had been discovered that by the addition of salt and gypsum, "two thirds of the dung now employed will raise not only as large a crop of potatoes, as the whole quantity under the present system will do, but also of superior quality." 2d, That the potatoes may be converted into meal, in which state it will keep for a length of time, and be far more wholesome—and, 3dly, That bread is greatly improved by the addition of the farina of potatoes in the proportion of one tenth, the farina having first been converted into jelly. This is followed by "Hints regarding the objects of the extensive inquiry that has been carried on, into the culture and uses of the potatoe." These were first to render Great Britain independent of other nations for her supply of food, which he supposes would be, if one tenth part of every loaf of bread, consisted of the farina of potatoes, as a million of quarters of wheat might then be dispensed with. 2dly, to ameliorate the condition of the lower orders of the Irish, who necessarily live almost exclusively on this root, and

who are liable to various diseases, from being compelled to subsist on them, long after they have become watery and unfit for food, and often to commence on their growing crop before they have reached maturity. He advises that each cottager should convert a portion of his crop into meal, which will not only keep better, but be also more wholesome. 3dly, To make known "a number of new uses to which the potatoes are applicable, which have been discovered on the continent.

The 1st chapter is occupied with the history of the potatoe, which is now so generally known, that we are rather surprized at his introducing it in a small work of this kind, especially as he has not been able to add any information which may not be gathered from many other works, in the possession of almost every one. In the 2d chapter he treats of the importance of increasing their culture, and offers several cogent reasons in favour of it, principally applicable to Great Britain. The 3d chapter is occupied with a comparison of the value of a potatoe crop, compared with one of wheat,—from the statements given in these two chapters, it appears to us to be of immense consequence to that country, that the culture should be extended, and that as soon as possible, as it will prove the speediest and most effectual remedy against the evils she has laboured under, and render her independent of other nations, for so essential an article as food. By converting the potatoe into meal, by a process which we shall hereafter give, it can be preserved for years without diminishing its nutritive qualities, and thus the excess of one year can be made to supply the deficiency of the next, if need be. The quality of nutritive matter obtained from one thousand parts of wheat is nine hundred and fifty; whilst from one thousand parts of potatoe only two hundred and thirty, "yet as nine tons are produced from an English acre of potatoes, and but only one ton from wheat, the acre of potatoes yields more than double the quantity of human food, compared to an acre of wheat or in the proportion of two hundred and seven to ninety-five of nutritive parts." It is estimated that it will require three hundred and thirty thousand acres of wheat more than is now cultivated in Great Britain, to furnish the supplies of food requisite for her population; but our author supposes that one hundred and sixty-five thousand acres of potatoes would prove amply sufficient.

We now proceed to the cultivation of this root. The proper selection of the variety for seed is a matter of importance, some are only to be recommended for their earliness; others which are later and are more productive, do not keep well, whilst others are still later, but highly esteemed for the length of time they will preserve their good qualities. The farmer should always therefore choose the variety suitable for the purpose intended, whether it be earliness, productiveness, or lasting qualities. It would be needless for us to describe the varieties of potatoes cultivated in Great Britain, as few of them have been introduced into the United states. But our Northern and Eastern brethren are making rapid strides towards improving this valuable root, and they now possess some most excellent varieties, and are constantly adding to their stock by raising new ones from seed. We cannot however omit giving the names of those held in most repute in Ireland. The *white eye* is the favourite for a general crop. The *Wicklow banger* for an early one. Next to these the *English white, or London lady.*

"It is a smooth, fair potatoe, and generally flat, but not so long as the former. It comes in early, but is, at the first digging, rather soft and watery: their bad qualities last but a very few weeks, and then it is found to be of more general family use than any other we know of, producing great crops, and lasting in perfection till the month of February; at which time the white eyes may be properly used and will continue good till the beginning of May; when a species called the Apple, succeeds. It seems to be only a variety of the white-eyes, being round and reddish, somewhat variegated, with a paler colour, but without such deep eyes or blotches. It will continue perfectly sound, and fit for eating, until the beginning of September. But all this requires a degree of attention which cannot be generally looked for; and notwithstanding great care, potatoes, when long kept, must, in a greater or lesser degree, lose their nourishing properties."

A black potatoe is also mentioned, having several good qualities, being hardy, requiring little manure, and withal very productive, "the stalks continually throwing out young potatoes, even to the surface of the ground," it also "lasts long in a sound eatable state." But the variety which our author gives the preference to, is a new one called the *Royal or Cumberland early.*

"It is of a large size, very prolific, of an excellent flavour, and ripens early enough to admit of the ground being employed either

in raising another crop of the same potatoes, or a crop of white peas, turnips, cabbages, or green kail. These circumstances render it a valuable acquisition; and there is reason to believe, that in a short time it will go a great way to supplant every other kind."

Although the Irish potatoe is not cultivated as a crop in the Southern states, nor is likely to be so, yet as a vegetable for the table, it is in constant demand, and no good garden is without it, we should therefore be more particular as to the seed we plant, and we should endeavour to obtain new varieties from seed, which would prove more suitable to our climate than those which we now cultivate. We have been too indifferent to this matter, and few have paid the least attention to it, being perfectly content to plant any variety which chance might offer, apparently under the strange belief that all were of the same quality, and like productiveness, always attributing their failure or success to the season, climate, or treatment, or any other cause, rather than the right one. To show that this is not a matter of so much indifference, we here extract an experiment made by Mr. Baker in Ireland, which sets it at rest, as far as one experiment can do so..

"An experiment by Mr. Whyn Baker in Ireland, produced the following results:

Sort.	Barrels per acre.
Black	111
Quakerwife,	108
Commonwife,	103
Red French,	88
White ditto,	85
English white,	83
White Munster,	79
Apple,	76
Spanish,	70
Crones,	60

"It is evident, from this enumeration, that under a proper management, the same ground, with the same manure and culture, will afford a crop of at least double the amount of an inferior species. Nothing can more strongly prove the great importance of cultivating the better sorts."

It being one of the objects of our author to introduce the culture on those lands where wheat could not be grown, we find him collecting a large quantity of testimony respecting their growth on such land. He has shown that on bogs well

drained, they are very productive, and he concludes that they are well adapted to bring into culture waste lands such as moor and mountain lands and bogs, as they will speedily repay the expense of improvement. He also states the results of several experiments made on grass lays, or layers, without dung, some of them very productive, but we doubt very much whether this course can possibly be recommended to us. The result of only one experiment on woodland is given, this produced five hundred and sixty-three bushels per acre, but this acre was also manured with twenty wagon loads of dung. We all know that new land, as it is called among us, is well adapted for the cultivation of the sweet potatoe, when well grubed, and we doubt not but that the Irish potatoe will prove productive on such land. In his observations on soil, we remark that he considers only the dry as suitable,—wet land as very bad. "A dry soil and wet climate seem to be peculiarly calculated for that root." We notice this more particularly, because in this country we have always been governed by this rule in selecting our ground, not recollecting that our climates differed. Mr. Wilson of New-York has fully tested the two varieties of soil, and gives it as his opinion that the reverse of the English practice ought to be adopted by us in order to produce fine mealy potatoes.* Our author makes some highly judicious remarks on "manuring for a potatoe crop," which we here give:

"Manures tend to augment the produce of potatoes in two ways; 1. Enriching manures, which promote the general fertility of the soil, and consequently add to the health, and to the luxuriance of the plant; these operate upon the soil, more by their *chemical* than their mechanical powers; and, 2. Where they render the soil, *in which the bulbs are to be formed*, as light and open as possible, which is found, by universal experience, greatly to augment the size of the bulb. In this case, more reliance is had upon the *mechanical* operation of the substances employed as a dressing, than on their *chemical* qualities In this point of view, many subtances are employed with good success by poor people, to augment the produce of their potatoes, that could scarcely be deemed, in the usual sense of the word, manures at all: such as twigs of young trees, clippings of hedges, small bushes of broom and furze, runts of cabbages laid in the trench where the potatoes are planted, and then lightly covered up with earth.

In order to obtain a full crop of potatoes, the skilful cultivator must adopt a practice, that shall be fitted to answer both of these purposes.

* See Vol. I. p. 415.

Every one knows, that the potatoes do not adhere to the *roots* of the plant, but to a particular set of fibres which push out from the bottom of the stem, which nature has provided for this very purpose, and which may be very properly discriminated by the name of *Umbilical* fibres. The fibres generally push out in a horizontal direction, often rising a little upward, while the *roots* of the plant, through which it sucks in the nourishment that sustains it, strike down into the soil below these fibres, where they branch out into various ramifications in search of food, as is common with most plants. The soil therefore, that is fitted to sustain, and to afford nourishment to the plant, and the bed, in which the bulbs are to be deposited, are two things totally distinct from each other. They are connected merely by juxta position; each requiring to be possessed of qualities different, and even opposite in some measure, to what would be required in the other. For the *potatoe-bed*, light, spongy, open friability are the qualities that seem to be the most indispensably necessary; a power to absorb and retain moisture in a moderate degree, without losing its adhesiveness and ponderosity, which are the principal characteristics of what we call a *rich* soil, are by no means requisite for the upper bed; but it is these qualities that constitute the very essence of the bed in which the *absorbent roots* are spread, and from which they are to draw the nourishment for the plant. The chief dexterity in cultivating the potatoe consists in combining these two qualities together.*

Enriching manures, such as well rotted-dung, (lime in some cases,) decayed animal substances of any sort, as the refuse of fish, &c. will all tend to render both firm rich loams, and light soils, more capable of encouraging *the growth of the potatoe plant;* which is the first requisite for an abundant crop of bulbs; but to dispose it to *bear kindly*, lightness of surface must also be given.

Mr. Townly of Belfield, tried a great number of experiments, with a variety of manures, to ascertain their effects on the production of potatoes. The following were the results:

Manures.	*Produce in lbs.*	*Quality of potatoes.*
1. Stable dung covered with common yellow moss,	438	remarkably fine.
2. Soapers' waste,	383	very fine.
3. Stable dung and coal ashes mixed,	344	very fine.
4. Stable dung alone,	315	very fine.
5. Stable dung and saw dust,	307	very good.
6. Stable dung and soapers' waste,	298	very good.
7. Soot, soil, and coal ashes,	271	very good.
8. Stable dung and lime,	268	tolerable
9. Chopped furze or whins, with a covering of lime over them,	256	very fine.

* Communication from the late Dr. James Anderson, a very eminent author on agriculture.

	Manures.	*Produce in lbs.*	*Quality of potatoes.*
10.	Dung of poultry and coal ashes,	236	pretty fine.
11.	Stable dung, and lime spread over the land,	230	pretty fine.
12.	Coal ashes only,	211	rather small.
13.	Decayed rushes and lime,	208	very good.
14.	Compost of dung, lime and soil,	204	middling.
15.	Salt and soil,	200	very good.
16.	Saw dust and lime,	197	rather small.
17.	Coal ashes and lime,	192	tolerable.
18.	Saw dust and coal ashes,	190	very small.
19.	Lime alone,	187	tolerable.
20.	Dung of poultry and sand,	156	rather small.
21.	Bark and stable dung,	144	middling.
22.	No manure,	134	very small.
23.	Tanners' bark and lime,	76	very poor.
24.	Bark alone,	35	very poor.

As stable dung and moss, *(see No. 1,)* had a decided advantage, they were carefully compared in another experiment, and the result was, a perfect equality between these two manures.*

These experiments furnish some useful hints.

It is evident from No. 1, that great advantage may be derived from uniting the two descriptions of manure, namely, the *chemical*, to furnish nourishment, and the *mechanical (*as yellow moss*)* to promote the growth of the plant, by keeping the ground loose and open.

Lime does not seem favourable to a large produce, for stable dung alone produced 315 lbs. and stable dung with lime, only 268, while the produce of the first was very fine, and of the second only tolerable. Lime alone only 187 lbs."

The whole of this chapter abounds with useful information, and we regret that our limits will not permit us to extract freely from it, we must content ourselves with giving the essence, and pass on. Dung of horses may be used fresh from the stable, in " favourable climates," but in a cold and wet climate, stable dung ought to be moderately fermented before it is inserted in the ground." When the productiveness and not flavour is regarded, it may be applied to the crop. When applied to the preceding crop the product will not be so great, but the flavour superior. Lime has been found efficacious, " especially on new lands or deep heavy lands." Used in a compost it is highly serviceable. It is objected to however by many as producing the disease called *curl*, to which potatoes grown in this climate are not, we believe, subject, never having been visited by it ourselves, or heard of it.

* Georgical Essays, vol. iv. p. 48.

We extract the " hints" on " *Gypsum, and rich earth or soil,*" as containing information which could not well be condensed.

" *Gypsum.*—Mr. Weston of Leicester, in April planted potatoes, half of which, as soon as cut, were put into powdered gypsum, consequently the cut part was covered with it, and then planted in drills, each set a foot asunder; a small quantity of gypsum was sprinkled upon each set besides. After they were covered with earth, a little more was spread along the drills.

The other half was planted in the same manner, except without gypsum. Whilst growing, no difference appeared between them; but on taking them up in November, the potatoes to which the gypsum was applied, produced about one-third more, and were larger.

Rich earth or soil as a manure for potatoes.—As the greatest crops of potatoes are raised upon new soils, it may thence be inferred, that new earth laid in the drills would act as a manure; and in an experiment tried to ascertain its effects, it was found, that where new earth was applied, it produced a luxuriant crop of excellent potatoes, nearly double of what was obtained from the drills where none of it was used."

It will be seen from the above that gypsum had a most wonderful effect, although used in very small quantities,—this is accounted for in a French treatise on the potatoe *(Traite des pommes de terre)* which is mentioned by our author. A French chemist (Monsieur Mollerat) found, after many experiments, " that the dung of animals promotes the vegetation of the plant *in the stem*, but that gypsum mixed with the soil, produces a greater quantity of roots." With the exception of sea ware and salt, the other manures mentioned in this chapter are not of much value. " Larger crops are produced from sea ware as a manure than even from dung, but the quality is not so good. The very best potatoes, however, are raised by exposing sea ware for some weeks to the atmosphere, in order thoroughly to dry it, and then mixing it, in the proportion of one fourth with horse or cow dung." The salt marsh which abounds on our sea board is a most excellent manure for both the Irish and sweet potatoe, but it requires a different treatment from that of the sea ware. The latter being easily decomposed may be used immediately, whilst the marsh having much woody fibre, requires to be first broken down, and it ought to be partly rotted before it is used. We know of no manure more valuable than that made by the marsh carted in-

to the cowpen and stables, there to be well trodden and mixed with the dung of the horses and cattle. The following extract contains some valuable information relative to salt as a manure :

"*Salt*—It is recommended by an intelligent writer on the subject of salt as a manure, (Mr. Johnson,) to apply, either from ten to twenty bushels on the surface, as soon as the potatoes are planted, or ten bushels in the previous autumn, and ten after inserting the sets, and he maintains that the results in either case will be highly satisfactory.

The following experiments were tried on light soils :

	Bushels per acre.
1. Without manure, the crop - - -	120
2. With 20 bushels of salt previous to September, -	192
3. With stable dung, at the time of planting, -	219
4. With stable dung and 20 bushels of salt, -	234
5. With 40 bushels of salt in September, and 20 bushels when the sets were put in, - -	192½
6. With 40 bushels of salt, as in the last experiment, and also with stable dung, - - -	244

It will be seen, that, in all the above experiments, the best crops were obtained by a mixture of salt and stable dung, as a *fertilizer*. The pretensions of salt alone appear very humble indeed ; but when mixed in moderate quantities, (for in large quantities it destroys vegetable life) with any active manure, it assists the decomposition of the dung, imbibes moisture from the atmosphere, and retains it in a way which is highly beneficial to crops, particularly in dry seasons. Its utility in the destruction of worms, &c. is also considerable."

(To be continued.)

Art. II.—*Engrafting of Grape Vines.*

1. *Engrafting of Grape Vines ; by* W. R. Armstead. *New-England Farmer, vol. 7, p. 229.*
2. *Grafting Vines at the root ; by* John Lowell. *Ibid. p. 66.*

There are several advantages arising from the grafting of the foreign varieties of grape vines on our native stocks, and it seems somewhat strange, that we have not availed ourselves of them, to a greater extent than we have done. The native vine is to be found in most parts of the United States, and

they abound in our forests and swamps. We ought to avail ourselves of them, either to form vineyards for making of wine, for which purpose, there is every reason to suppose many of them are suitable, or use them as stocks to engraft those more delicate foreign varieties which we wish to propagate. Scions, engrafted on native stocks will, in the first year, if permitted, bear fruit, in the second year they will produce a tolerable crop, and in the third they will be in full bearing, whilst those which have been raised from cuttings will have scarcely progressed, or have just commenced bearing. The first extract is a letter addressed by Gen. Armstead to John Prince, Esq. After some introductory remarks, he observes:

"Arriving at my native place in 1819, I found our old family garden in a state of decay; and in the enclosure I found running several very luxuriant grape vines, while those of the former had almost entirely disappeared. The Sweet Water was the only imported grape we had, (and those under the best culture when I knew them,) were frequently failing. Seeing the far stretched vine of our native soil climbing and regaling in rich luxuriance around the old paling of our garden, determined me at once to make the experiment. After searching for proper slips, I found as many as I required. This was in the month of March in the year above stated, before any appearance of the flow of the sap. I picked out four *native* vines, and headed them down as low as the turf, and after going through the common process of inserting the graft, I bound them with woollen yarn, and covered them with proper grafting clay; and to make the process doubly sure, I cut large sods and inclosed the grafts completely, and covered them in this way about four inches, leaving two eyes exposed. The experiment proved the utility of thus preserving them from sun and air, for three out of four took, and on the head of the largest vine, I put two grafts, both of which survived, which made it equal as if all had taken. The result of the first year was, that the grafts averaged a growth of from nine to twelve feet. The second year they bore many bunches of grapes. The third year my mother wrote me that they had gathered upwards of two barrels from my four vines. The succeeding years the neighbourhood was in part supplied, and from others following the example, no failure of fine fruit, I believe, exists in the neighbourhood."

He communicated the result of this experiment to several gentlemen, among others to Col. Gratiot, by whom it was,

"Successfully proved, even to rearing to great perfection the Portugal grape, such as we receive in jars, on the common Fox grape growing in our swamps, the roots of which were taken up in the fall, and headed down, and planted along the trellis. In the month of March they were grafted, the result of which is a growth of a grape never heretofore cultivated in our country, and as to flavour and size, superior to the imported.

The vines on which I made the experiment, were our small Virginia blue grape, in size not larger than buck shot, growing in bunches, and averaging from one hundred to one hundred and fifty in each bunch, and differing from the Fox grape essentially. But I am of opinion that any of our native grape stocks would answer equally well."

In a postscript he observes,

"They produce better, and in no instance have I known the rot to affect the Sweet Water grape, engrafted on the native vine."

In the communication from Mr. Lowell, is detailed not only the mode of grafting on the root, but also that of grafting on the stalk or stem of the vine. In answer to a correspondent, with respect to root grafting, he observes,

"I inserted them by cleft grafting, *using no clay*, but drawing up the natural soil about three inches above the insertion—out of five scions four grew. It is a valuable discovery for our horticultural friends in the interior. They can always procure scions of the best grapes, and insert them in the roots of our native grapes, of which the country is full. The Isabella would make an admirable stock for the foreign grapes, and there is reason to hope that the more delicate grapes would flourish better on our native vines, and probably be more hardy, than on their own roots."

The grafting on the stalk or stem he considers "not a very easy or successful process." In his first attempts he repeatedly failed, which he attributed to inserting the graft too early. "If the scion is kept in a cool place till the vine has shot into leaf, I find success certain."* The two following are the methods given by him.

"One is to split the stalk of an old grape vine of two years growth, by a sharp knife, four inches in length, and to insert wedges to keep the slit open—then prepare a scion, pared to a wedge form at its two ends, and also pared to a wedge form throughout its length—one eye only should be inserted. As soon as the pegs which keep the slit open are withdrawn, the wood will embrace with great force the scion. Bind it with matting, or with woollen yarn, then either cover the whole except the eye with clay, or, as I prefer, with a resinous compound of rosin and beeswax. I have succeeded in this mode, but I prefer another.

Take a scion with one eye only, four inches in length—leave about an inch above the eye, and three inches below it—pare away about half the thickness of the scion, having cut the lower end square—then make a corresponding cut into a grape shoot of exactly equal size, terminating in a square shoulder, upon which the scion will rest, and which it should exactly meet—secure the scion to the stalk by a bandage, and cover it as in other grafting.

It will be perceived that in both these modes the main stalk is not cut off, continues to grow, and will not feel the wound if the scion does not take. If it takes, and is healthy, then cut off the stalk immediately above the insertion, and you will have fruit perhaps the next year.

Still the operation is a doubtful one, and I think the root grafting will eventually supersede it in this country and in Enrope, except in cases where we wish to change the fruit of a vine already introduced into a grape house.

* *This agrees with the directions given in the Manual of the vine; where it is recommended that the first flow of sap should be exhausted before the scions are inserted.*

SELECTIONS.

ART. I.—*Observations on the manner of Manufacturing Indigo in the Southern Provinces of India; with some Remarks on its Chemical Changes and Combinations.* *By* CHARLES H. WESTON, Esq.

[FROM THE QUARTERLY JOURNAL.]

DR. Bancroft introduces his observations on indigo by the following strong expressions: "The subject of this article is the most interesting, important, and instructive, which can occupy the attention of a dyer or a chemist; the admirable and singular properties of indigo being only surpassed by those of the colouring matter of the murex and the buccinum a little, while it is of much higher practical utility than the latter."* Perhaps there are few men better qualified to form an estimate on this point than Dr. Bancroft, who had removed from the art of dying generally so much that obscured it, and had thrown so much light on the changes and chemical characters of indigo in particular.

Not only, however, has it claims, from its peculiar chemical characters, upon the attention of the scientific man, but the important part it now holds in our exports from India, must also interest the man of business in its favour. The indigo of the East Indies, which at one time ranked so low in its comparative value, has, by a better mode of manufacture, been progressively improving, and, consequently, as gradually making its way into European markets, till, at length, the exports of the West, of Spanish America, and the West Indies, have been to a great extent transferred to the East.† This is a conquest indeed, but it is a conquest which English *intelligence*, as well as enterprize, has accomplished. To those, therefore, in whose minds the bare mention of the word "theory" is but too apt to call into action every latent prejudice, and to secure to it the most determined opposition, this very striking instance before us, among many others which are daily occurring, of the great advantages resulting from the combined assistance of theory and practice, should lead such, at least, to question the propriety of their hatred to all

* *Vide* "Experimental Researches concerning the Philosophy of Permanent Colours." By Dr. Bancroft.

† It is, I believe, computed that British India supplies three-fourths of all the indigo brought into European markets.

theoretical knowledge. The tendency of scientific information, as it lays open causes and effects, is, to point out what parts of the process are superfluous, and what may be improved; and, "in proportion as science advances, all the principles become less complicated, and, consequently, more useful; and it is then that their *application* is most advantageously made to the arts."* In the following remarks, I shall endeavour to bear in mind the comparative value of both theory and practice.

There will be no occasion for me to make any remarks upon the botanical characteristics of the indigofera tinctoria, as they are already so well known.† Upon the *mode*, however, of manufacturing, or rather of separating, the valuable dye from the indigo leaves, something, it appears to me, need be said; inasmuch, as in works written professedly upon this subject, I have only met with one method of conducting this process, namely, the green or fermenting process; by which is intended the *fermentation* of the plant fresh cut and green in vats properly prepared for the purpose. There is another method the very reverse of this, the production of indigo from the *dried* leaves of the plant *without* fermentation; and this is the method which is to be the subject of the following remarks.

I shall slightly touch upon the cultivation and growth of the plant, making a few observations on its peculiar structure, and its wonderful adaptation, both to the climate and the soil in which it is destined to exist.

Immediately after the great periodical fall of rain, which takes place during the monsoon months of the latter part of October, November, and the beginning of December, the ground is ploughed up and properly prepared for the reception of the seed. The time of sowing will, of course, depend on local situation---the elevated parts sowed before the monsoon has quite passed by, while, from fear of inundation, the low tracts remain untouched till a later period.

The plant requires a light soil, little, but timely rain, and much sunshine. Rain should fall immediately after the plant shows itself above the ground, for by it the plant is not only invigorated, but cleansed from those innumerable insects, which otherwise would have fed upon, and destroyed the leaves.

From this time, comparatively little rain is required, if it fall opportunely, that is, at the different stages of the growth of the plant. After the first cutting of the branches, it sickens, and at that period rain is particularly necessary for its proper restoration. The same remarks will, of course, apply to the like periods between the other cuttings.

* *Vide* "Elements of Agricultural Chemistry." By Sir H. Davy.

† *Vide* the Botanical characters of the indigofera genus in Rees's Cyclopedia, and their classification by Dr. Bancroft.

This plant, unlike the Bengal plant, is only made use of for *one* year, during which the branches are cut off from the stem three or four times, after which the ground is ploughed up for another sowing. But each successive growth of the branches produces an increased deterioration of the qualities of the leaves; so that one part of the leaves of the first cutting would yield as much indigo as two parts of the third crop.

The produce of the leaves is very precarious, for excessive rain is almost as destructive of the *properties* of the plant, as continued drought is of the plant itself. The rapidity of the growth of plants during much rain, in the temperature of the tropics, is extraordinary, and a proportionate deficiency in all that characterizes the vegetable world necessarily follows. This we find to be the case with all forced vegetables; and the mildness of the radish of hastened growth, when contrasted with the highly pungent and almost acrid flavour of the slowly and gradually advanced one, may be adduced as explanatory of this observation. Besides this general remark, however, there are other considerations in some measure peculiar to this plant. Indigo contains an extraordinary quantity of carbon, to obtain more or less of which carbonic acid gas must be decomposed; the plant retaining the carbon, and transpiring pure oxygen gas.* But as this important change can only be effected when the plant is under the direct and immediate influence of light, rainy weather, by intercepting the sun's rays, prevents the accomplishment of this very important part of vegetable economy. Hence it is, as is practically well known to manufacturers, that the indigo plant, however fine and luxuriant, as is the natural result of much rain, is very deficient in *produce*, and a similar loss is experienced even if the plant, without the fall of too much rain, has grown up under *cloudy* weather. Sunshine, much and continued sunshine, is essentially necessary for the proper exercise of those secretory organs by which this peculiar drug is formed and perfected.

This plant is destined, therefore, to exist under a burning sun and much deficiency of rain; how then is it to obtain its necessary supply of water? Nature, who invariably so well adapts the means to the end, has, in this instance, displayed her usual wisdom. The root, instead of being short, and branching off in different directions, and reaching to various depths, is one continuation of the stalk, which decreasing gradually to a point, after the manner of the common garden radish, descends perpen-

* There are, indeed, some plants which must derive the *whole* of their carbon from the atmosphere. Sir H. Davy remarks, "many plants that grow upon rocks or soils containing no carbonic matter, can only be supposed to acquire their charcoal from the carbonic acid gas in the atmosphere." In the sandy soil of India there certainly cannot be enough of vegetable matter to supply a proper proportion of carbon.

dicularly into the ground, to the depth of about three feet. While, therefore, the plant is necessarily exposed to the continued heat of a broiling sun, it is deriving benefit from the moisture of that part of the soil, which always remains uninfluenced by any external heat. I before stated that the nature of the soil should be light and sandy; and the non-conducting powers of the sand, in reference to caloric, afford a sufficient reason for the complete protection of the root. I have often found that, while the surface at mid-day was too hot to allow the hand to remain in contact with it, the temperature of the sand, at even a short distance beneath the surface, was gratefully cool.*

There remains another reason why the plant can endure drought so continued. As dew is the condensation of the aqueous vapours exhaled by the sun during the day, the quantity of dew, *cæteris paribus*, will always be in the direct ratio of such heat; and hence it is, that, in clear, still nights, after such unclouded weather, the fall of dew within the tropics is immense. Now, this water, so precipitated during the absence of the sun, completely envelops the entire plant, and is copiously taken up by those absorbing vessels, which form a part of the wonderful physical structure of the leaves of plants. Thus is it constantly restored to the full exercise of all its powers, ready to receive the renewed action of the sun's rays, so necessary for effectuating the decomposing process before mentioned.†

But plants, like animals, transpire, as well as absorb, moisture, and equally vary in their power of doing so. Less quantity of water is, therefore, necessary for the growth of one genus of plants, whose transpiration is limited, than for the wants of those of another genus, whose transpiration is more extensive.‡ Now, although the extent of transpiration may be dependant upon, and be in proportion to, the absorption of water, and *vice versa*; and therefore, as the absorption is extensive, the transpiration must be so likewise;§ yet may there not be some *balance* in favour of

* A good instance of the non-conducting power of sand is given in the following extract:—"The red hot balls employed by the garrison of Gibraltar to destroy the Spanish floating batteries, were carried from the furnaces to the bastions in *wooden* barrows, with only a layer of sand interposed, and this was found sufficient to prevent the balls, though in a high state of incandescence, from setting fire to the wood."—*Tilloch's Philosophical Magazine.*

† "In very intense heats, when the soil is dry, the life of the plants seems to be preserved by the absorbent power of their leaves; and it is a beautiful circumstance in the economy of nature, that the aqueous vapours are most abundant in the atmosphere, when they are most needed for the purposes of life."—*Davy's Agricul. Chemistry.*

‡ *Vide* Ure's Chemical Dictionary, article "Vegetable Kingdom," and Brande's Manual of Chemistry. vol. i.

§ See this stated in Dr. Thomson's extensive Observations upon "Vegetables," in his System of Chemistry.

the absorbing powers over the transpiratory powers of the plant?* These appear to be some of the methods which nature adopts to meet those apparent difficulties, the continuance of an unclouded sky, and the constant and necessary supply of water.

It may be further remarked, that in the growth and formation of this plant, beside the water essential to the solution, or carrying in suspension different vegetable, alkaline, or earthy substances, to the plant—much water is not wanted: because, as hydrogen in the ultimate products of indigo,† forms rather an unimportant part, the decomposition of water must be proportionably limited.

(To be continued.)

ART. II —*Outlines of Horticultural Chemistry.—Manures.* By G. W. JOHNSTON, Esq. of Great Totham, Essex.

[FROM THE GARDENER'S MAGAZINE.]

(Continued from page 127, Vol. ii.)

MANURES are of benefit to plants, by affording some of the gases of the atmosphere to their roots in a concentrated form. A soil, when first turned up by the spade or plough, has generally a red tint, of various intensity, which, by a few hours' exposure to the air, subsides into a grey or black hue. The first colour appears to arise from the oxide of iron, which all soils contain, being in the state of the red, or protoxide: by absorbing more oxygen by the exposure, it is converted into the black, or peroxide. Hence, one of the benefits of frequently stirring soils; the roots of incumbent plants abstract the extra dose of oxygen, and reconvert it to the protoxide. Coal-ashes, in common with all carbonaceous matters, have the power of strongly attracting oxygen. Every gardener may have observed how rapidly a bright spade becomes covered with rust, or red oxide, which is left foul with coal-ashes. All animal and vegetable manures absorb oxygen from the air during putefraction. If it is

* We learn from Mr. Bonnet's "Researches concerning the Use of Leaves," the great extent to which vegetation can be carried by the water absorbed *solely* by the leaves, although *transpiration* was, at the same time, going forward. (*Vide* Thomson.)

† These, according to Dr. Ure, are—

Carbon - - -	71.37
Oxygen - - -	14.25
Hydrogen - - -	4.38
Azote - - -	10.
	100.

enquired of what benefit this property is to plants, since the gases are freely presented to them in the atmosphere, it admits the ready answer,---that they enjoy the additional quantity which is thus collected to the vicinity of their roots, without the latter source being diminished; and that plants are benefitted by such additional application to their radiculæ, has been proved by the experiments of Mr. Hill, quoted in a previous part of these outlines. The question may also be asked, whether the roots have the power to extract the oxygen from its combination That they have, admits of little doubt, since Saussure found that they were able to extract various saline bodies from their combinations; not only extracting, but selecting in those cases where several salts were in the same solution. Carbonic acid is also of benefit to plants, when applied to their roots in an advanced stage of their growth. Animal and vegetable matters evolve this gas whilst putrifying, but I am not aware of any manure that absorbs it from the atmosphere, so as to be for that reason beneficial to vegetation. Lime attracts it rapidly, but combines with it so strongly, that it is useless to the plant, until the carbonate of lime so formed is imbibed and elaborated.

Manures assist plants, by destroying predatory vermin and weeds. This is not a property of animal and vegetable manures: they foster both those enemies of our crops. Salt and lime are very efficient destroyers of slugs, snails, grubs, &c. It is astonishing how ignorantly neglectful are the cultivators of the soil, when their crops are devastated by the slug, not to dress them, so as to render the surface of the soil quite white, during a promise of a few day's dry weather, with caustic lime. It is instant destruction to every slug it falls upon, and those whom it misses are destroyed by their coming in contact with it when moving in search of food. It is a common practice to burn couch-grass, docks, gorse, and other vegetables which are very retentive of life, or slow in decay: a more uneconomical, unscientific method of reducing them to a state beneficial to the land of which they were the refuse, cannot be devised. In breaking up heaths, such exuviæ are very abundant; but, in all cases, if the weeds, leaves, &c. were conveyed to a hole or pit, and, with every single horse-load, and with barrow-loads in proportion, a bushel of salt and half a bushel of lime were incorporated, it would, in a few months, form a mass of decayed compost of the most fertilizing quality; the lime retaining many of the gases evolved during the putrefaction of the vegetable matter, and the salt and it combining to destroy noxious animals which might form a nidus in the mass. By this plan, nearly all the carbonaceous matters of the refuse vegetables are retained: by burning, nearly all of them are dissipated. The forming of a compost such as that recommended, is justified and approved by the experience of many.

Stable manure, and all decomposing animal and vegetable substances, have a tendency to promote the decay of stubborn organic remains in the soil, on the principle that putrescent substances hasten the process of putrefaction in other organic bodies with which they come in contact. Salt, in a small proportion, has been demonstrated, by Sir J. Pringle, to be gifted with a similar septic property: and that lime rapidly breaks down the texture of organized matters is well known.

There is no doubt that rich soils, or those abounding in animal and vegetable remains, are less liable to change in temperature with that of the incumbent atmosphere, than those of a poorer constitution. This partly arises from causes explained when treating of the influence of the colour of soils upon vegetation. Some manures, as salt, protect plants from suffering by sudden reductions of temperature, by entering into their system, stimulating, and rendering them more vigorous, impregnating their sap, and, consequently, rendering it less liable to be congealed. (*Johnson's Essay on the Uses of Salt*, ed. 2. p. 129.)

Every cultivator of the soil, by certain empirical signs, may be able to determine that certain applications are required to render his land productive; for example, he knows when chalk may be applied to advantage; but no lengthened practice has yet enabled any one to judge of the quality of a chalk by its exterior appearance. Chemistry alone can do this. The farmers of a district in Yorkshire having experienced the benefit of lime, procured some from a neighbouring kiln, and were astonished to behold the injury it caused to their crops, and it remained an anomaly of their experience, until chemistry demonstrated that it contained a very large proportion of magnesia, which, absorbing carbonic acid very slowly, remained in a caustic state, to the injury of the roots of the plants, and the diminution of benefit from the carbonic acid evolved by the decomposing constituents of the soil.

Every farmer in districts where marl is to be obtained, is aware that it is highly beneficial when applied to the land; few of them, however, know that this various-coloured compound of earths contains always chalk, often to the amount of 50 per cent. They learn, from experience, that the marl of one district is most beneficial to their heavy soils; that of a second district is productive of most benefit upon light land: yet they are ignorant, in the first instance, that the first marl contains silica, or sand; that the second has alumina, or clay, as a component; and, if a new pit of marl is opened, they have to wait the result of some years' practice before they ascertain its quality. The chemist can inform them in an hour.

(To be continued.)

PART III.

MISCELLANEOUS INTELLIGENCE.

Growth of the Sugar Cane at Pendleton.—Passing through Pendleton last year, we stopped a few days, and whilst there, called on Mr. Maverick. This gentleman has this year cultivated a small quantity of the sugar cane, and from a part he has made some most excellent molasses. In April he planted one row, one hundred and eighty feet long, with ribband cane, on a stiff red clay soil, which was originally very poor, but which he manured at the rate of one hundred cart loads of stable dung to the acre. It was well broken up with a coulter plough twenty-two inches deep. The cane came up on the 7th of May, and was cut down by frost; during the summer it was kept very clean, and when cut, the best averaged seven feet in height; of these it took four hundred and twenty-five canes to produce twenty-four gallons of juice, from which was made two gallons of very thick molasses, and one and a half of inferior. The quantity of good molasses would have been greater, had he not attempted to make sugar, for which purpose he boiled the syrup much longer than was necessary. The gallon and a half was very inferior indeed, totally unfit for use, Nearly as many cane remained on the ground as had been taken off, and averaging when we saw them (late in October) about five feet. These being considered too young to be used had been left for seed, they were still in a growing state, having had no frost to check vegetation. This is the first experiment to manufacture sugar in the upper country, and though it has not succeeded, yet it shows that excellent molasses can be made, and at a rate to afford handsome remuneration. We advise our friends to persevere in the growing of the cane. We believe that sugar will yet be made in the upper part of our state. In conversation, Mr. Maverick informed us, that he grew the sugar cane from 1800 to 1807, in Charleston, and at that period made a small quantity of sugar. The variety he then had was the Otaheite. We heard of several experiments making in the upper country with the sugar cane, but did not hear that any thing more was attempted, for the present, than to obtain seed.

Manufacturing refined Sugar from the juice of the cane.—An application has been made to the legislature of Georgia to remunerate William A. Archbald, a sugar-refiner of the city of New York, for making known a discovery he has made in manufacturing refined sugar from the juice of the cane, or to secure to him the benefits of his discovery, by preventing others from using, without leave, his process of boiling sugars. In a letter to James Smith, Esq. of McIntosh county, Mr. Archbald refers to a communication he had previously made to Col. White of Florida on this interesting subject, in which he says:—

"I transmit a sample of the sugar made from these syrups,* by which you will perceive the immense advantages to be derived from these improvements. The syrups had suffered considerably from fermentation, which is well known to be destructive to the granulating principle; notwithstanding which, and besides having been kept more than five weeks, they produced

* *Ten puncheons procured by him from New-Orleans.*

an article equal to double-refined sugar, as No. 2 will evidence. First operation—a quantity of syrup requisite for one hundred pounds ordinary brown sugar, yielded 89 lbs. No. 1, with a residue.

"Same quantity, heated differently, varying the ingredients, produced 91 lbs. No. 2. From these operations, a certain quantity of syrups, commonly called molasses, was obtained; these syrups being re-boiled, you have at the rate of 40 per cent. of No. 3, which also left a residue as molasses, very fine. They were in their present state at the end of thirteen days, which is less than half the time required by the mode now practised in all sugar countries. No. 1 required at the rate of about ¾ of a cent per pound for ingredients—No. 2, about one cent per pound—No. 3, nothing more than the requisite labour. These sugars being dry, will of course be subject to no loss from transmission, which now falls so heavily upon the planter—these are calculated to command a ready sale and a good price, being in every respect superior to white Havana. Although I am not sufficiently acquainted with your syrups, to pronounce them equal or superior to those referred to, yet from what I have seen of them, I should presume satisfactory results might be expected, &c."

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Agricultural Addresses.—Having occasion to correspond with the Editor of the Gardener's Magazine, last year, we embraced the opportunity to forward him several Agricultural Addresses. In the last number of that Magazine, he thus notices the Addresses of Messrs. Horry, Seabrook, and Townsend: "The three Addresses to the Charleston, South-Carolina, and St. John's Agricultural Societies, by Messieurs Horry, Seabrook, and Townsend, have been sent us. It is gratifying thus to mark the spread of agricultural science and industrious pursuits. An infant state of things is precisely that state in which societies can be of real use to the public: in a more mature state they become monopolies, and while they do good on the one hand, do harm on the other. The Horticultural Society of London is as much a monopoly as the East India Company: both monopolies did good at first, and both are now, to a certain extent, oppressive to the free industry of individuals. The three addresses alluded to, are written with very considerable ability and knowledge of the subject; and we speak with the utmost impartiality when we say, that, during the rage for agricultural societies which existed in this country some years ago, no one address appeared, not even those of Sir John Sinclair or Arthur Young, at all to be compared with them, either for extensive knowledge of the subject, or sound general views on agricultural legislation."

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Cotton Seed Hulling Machine.—Petersburg, Va. July 7. We bespeak the attention of the public to the advertisement of Messrs. Follet and Smith, offering for sale rights for the use of their very ingenious machine, for hulling Cotton Seed. We have lately visited the machine which these gentlemen have erected at the Mills of Messrs. Smith & Boisseau, and were highly gratified with its performance. The force applied was equal to from two to three horse power, and the seed was cleaned and hulled with great rapidity—furnishing a bushel of kernel, in good order, in seven minutes and a half. We hazard nothing in saying that this machine is as creditable to the ingenuity of its inventor, as it is likely to be beneficial in its results to the country at large, but more particularly to the cotton growing states. The oil expressed from the cotton seed has been used here for painting, and, from the few experiments which have been made for that purpose, it was found to be but little, if any, inferior, to linseed. It is believed that it may be applied to many other purposes—for gas lights, lamps, machinery, cleaning wool, &c. Some idea may, therefore, be formed of the importance of this invention, when the fact is taken into consideration, that the consumption of oil for these purposes, is annually increasing, while the production of flaxseed is rapidly declining. If this oil shall be found, on further experiment, to answer all the expectations of those who have tried it in the pre-

sent imperfect state of its manufacture, and to enter generally into the consumption of the country- it must add greatly to the resources of the Southern states. A bale of cotton weighing three hundred and fifty pounds, will yield ten bushels of kernel in a clean state, from which twenty gallons of oil may be expressed. The annual crop of cotton in the United States may be estimated at 800,000 bales, which will yield 8,000,000 bushels of kernel; but deducting 20 per cent. for the seed which may be required for planting, and lost in the gathering, we have 6,400,000 bushels of kernel, or 12,800,000 gallons of oil, which, it sold at the moderate price of 50 cents per gallon, would be an addition to our resources of $6,400,000 per annum—independent of the sale of the oil cake, an article which is known to every farmer as a nutritious food for cattle. In making this statement, we are not to be understood as saying that such *will* be, but that such *may* be the results arising from this invention. Since the machine has been erected, it has been visited by several gentlemen, from different parts of the Union, fully competent to judge of its merits, who have pronounced it second in importance to this section of the country, to the cotton gin only: and we trust that the public attention will be speedily directed to its advantages, which are fully set forth in the advertisement inserted in to-day's paper.—*Intel.*

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Wilmot's superb Strawberry.—In a former number we noticed the great size of this fruit. In the Gardener's Magazine, a correspondent states that he had gathered "several strawberries from two or three plants of Wilmot's superb, of great size and weight." The smallest noticed, "measured four and a half inches circumference, and weighed upwards of half an ounce troy weight; another measured six inches round and four inches across, and weighed 5 dr: 1 sc: 6 gr: and the one which I have gathered to-day weighs 7 dr: 15 gr:" A plate of these strawberries was exhibited at the Hertford Horticultural show, one of which measured seven inches in circumference, and weighed one and a half ounce avoirdupois." Several others very large are mentioned. These plants are for sale at several of the Northern Nurseries, but we have seen no account of the size they attain in America.

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Lime Plant.—This plant *(Podophyllum peltatum)* is a singular production of nature. The stem, foliage, flower, and fruit, are formed in the earth; and after the plant has come up, there is nothing more than the extension of parts. The stems, at the height of from eight to twelve inches, branch out in two arms, at the extremity of each is a large palmated leaf. In the fork proceeds the fruit stem; The first that is seen in the spring is a delicate membraneous cap, which is soon burst open by the flower bud, which is large, white and round. The shoulders and arms, lying close to the stem or trunk, soon appear, and as the plant rises, the fruit stem elongates and the arms elevate themselves. The fruit is about the size of a large lime, green while growing, and yellow when ripe; has the flavonr of a pine apple; and as to eating, but little inferior to that fruit. The plant requires a moist soil in a shady situation. May be propagated by seed, but best by dividing the roots, which are creeping and jointed. The root is medicinal.*

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Seed Potatoes.—By an experiment carefully made several years ago, it was found that seeds from the top end of the Irish potatoe, yielded the largest and the earliest crops; that seeds from the middle portion gave two-thirds of the former, and that those from the smaller, or root end, gave less than one-third of the first. It follows, that if only the root ends had been rejected, the whole crops would have been increased at least in the rate of seven to nine. In some parts of Ireland, where the culture of the potatoe is carefully studied, it is common to reject seeds from the root end.

* *These plants are advertised for sale in Boston, at the seed store connected with the New-England Farmer, at 25 cents each.*—Ed. So. Agr.

Preservation of Potatoes.—Potatoes, at the depth of one foot in the ground produce shoots near the end of the spring; at the depth of two feet they are very short, and never come to the surface; and between three and five feet they cease to vegetate. In consequence of observing these effects, several parcels of potatoes were buried in a garden at the depth of three feet and a half, and were not removed until after intervals of one and two years. They were then found without any appearance of germination, and possessing their original freshness, firmness, goodness and taste.—*Ann. de la Soc. d' Agric.*

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Various articles for fattening Swine.—Skimmed milk and pea, oat, or barley meal, rank first in point of excellence; with respect to the quality of the flesh, milk-fed pork being superior to any other description, not only in delicacy of flavour, but in substance and weight, none weighing so heavy, in proportion, as the milk-fed animal. Hence the bacon of the dairy counties is superior. Milk will fatten pigs entirely, without the aid of any other food, a practice sometimes in the dairies Corn-fed pork is next in value, peas, oats, and barley, being the best adapted grain Bean-fed pork is hard, ill flavoured and indigestible: potatoe-fed—it is loose, insipid, weighs light, and wastes much in cookery. To mix potatoes in the food of fattening pigs, is deceptious, deteriorating the pork in exact proportion. Hence the Irish pork and bacon are generally inferior to the English, and the market price so in proportion. The inferiority was, some years since, stated at three ounces per lb. upwards, by an eminent dealer in Irish provisions. Clover-fed pork is yellow, unsubstantial, and ill-tasted; fattened on acorns, it is hard, light, and unwholesome; on oil-cake, seeds, or chandlers' graves, it becomes loose, greasy, and little better than carrion; on butchers' offal, luscious, rank and full of gravy, but of a strong and disgusting scent. Compared with the general consumption of pork, the real dairy-fed meat bears a very small proportion, and the sale of it in the metropolis, is in very few hands, always commanding a superior price. In some parts of France they skin their pigs intended for fresh meat.—*Br. Far. Mag.*

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Vegetable origin of Silk.—The parenchyma of the white mulberry is composed of a tissue of beautiful white fibres of silk, much resembling China silk, which would lead us to the inference that silk is a vegetable, not an animal product, that is to say, that the basis of the material, in its proximate form, is derived from the vegetable kingdom, though the spinning of its substance into a lengthened thread is entirely due to the mechanical functions of the silkworm. The silk tissue of the mulberry becomes very obvious by breaking some decayed twigs of two or three years' growth.—*Gar. Magazine.*

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New Work.—Mr. William Prince of the Linnæan Botanic Garden near New-York, has in press "*A Treatise on the Vine*, comprising a copious and complete dissertation on its culture, management, &c. together with accurate descriptions and remarks on the properties of about 200 varieties of Grapes best suited for wine and the table, with a careful arrangement of the synonymes." From the specimens we have seen, we doubt not but that it will be highly useful. We will hereafter take further notice of it.

QUERIES.

We have tried Mr. Blackledge's experiment for preventing the ravages of the Cut-Worm, without success. Have any of your other correspondents informed you of their trying it, and with what fate? N. G. A.

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Have any experiments been made with green marsh as a manure for corn. *A Plain Country Farmer.*